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ABSTRACT

The academic and military programs of the five service academies are reviewed and found generally to produce qualified officers, but several aspects of their program could be improved. It is noted that only the Naval and Merchant Marine Academies require a comprehensive examination to evaluate students' professional competence before graduation and commissioning. These examinations should not serve as rigid formats, but as guides for the other academies in developing systems to meet their specific needs and to identify military training shortcomings. The Naval and Coast Guard Academies have recently established formal programs to assess individual and group performance after graduation; the Air Force and Military Academies lack such programs, relying principally on informal, fragmentary feedback. A formal program is suggested to give the academies better information on the competence of graduates they are producing. (Author)

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REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Academic And Military Programs Of The Five Service Academies

Departments of Defense, Transportation, and Commerce

All five academies are generally producing qualified officers, but several aspects of the academies' programs could be improved.

For instance, only the Naval and Merchant Marine Academies require a comprehensive examination to evaluate students' professional competence before graduation and commissioning. These examinations should not serve as rigid formats, but as guides for the other academies in developing systems to meet their specific needs and to identify military training shortcomings.

The Naval and Coast Guard Academies have recently established formal programs to assess individual and group performance after graduation; the Air Force and Military Academies lack such programs, relying principally on informal, fragmentary feedback. A formal program gives the academies better information on the competence of graduates they are producing.

U S DEPARTMENT OF HEALTH EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

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OCT.31.1975

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159219

To the President of the Senate and the
Speaker of the House of Representatives

Because of widespread congressional interest in the operations of the service academies, we have conducted a series of studies at the Air Force, Naval, Military, Coast Guard, and Merchant Marine Academies. This report should help the Congress assess how well the academies are conducting their academic and military programs to produce the types of graduates the services need. Our February 1975 report dealt with the academies' financial operations, and a later report will discuss student attrition.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretaries of Defense, Transportation, and Commerce; and the Secretaries of the Army, Navy, and Air Force.

Comptroller General
of the United States

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COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

ACADEMIC AND MILITARY PROGRAMS OF THE FIVE SERVICE ACADEMIES
Departments of Defense, Transportation, and Commerce

D I G E S T

In general, all five academies are producing qualified officers. However, several aspects of the academies' programs could be improved.

For instance, only the Naval and Merchant Marine Academies require a comprehensive examination to evaluate students' professional competence before graduation and commissioning. These examinations should not serve as rigid formats, but as guides in developing systems to meet the particular needs of the other academies. These examinations could also identify military training shortcomings. (See p. 3.)

The Air Force and Military Academies lack a systematic method to assess individual performance after graduation, relying principally on informal, fragmentary feedback. The Naval and Coast Guard Academies have recently established formal programs to assess graduates. A formal program gives the academies better information on the performance of the graduates they are producing. (See p. 4.)

The Air Force should provide its Academy with information on its specific needs and on shortages of officers with technical backgrounds for the Academy to use in developing and administering the majors program and the cadets to use in selecting academic majors. (See p. 5.)

The Coast Guard Academy needs to increase the number of graduates with technical backgrounds to meet the Coast Guard's needs. (See p. 5.)

About 25 percent of the Naval Academy's academic faculty do not have advanced academic degrees. The Navy could expect its Academy graduates to be more qualified if the faculty were more academically qualified. (See p. 6.)

The Merchant Marine Academy should give more attention to formulating and evaluating sea year projects--a valuable adjunct to classroom instruction. (See p. 6.)

A summary of GAO's observations, conclusions, and recommendations along with the agencies' comments are contained in chapter 2.

CHAPTER 1

INTRODUCTION

Our broad study of the service academies was conducted in three phases: financial matters, attrition, and the academic and military programs. Our report entitled "Financial Operations of the Five Service Academies" (FPCD-75-117) was issued in February 1975. That report included information on the total cost of operating the academies and identified opportunities for savings. The attrition study investigates why students leave the academies before graduation and the alternatives available to reduce such attrition. In this study, we wanted to determine whether the academies' programs were designed to produce the types of graduates needed. We accepted the services' statements of what types of graduates they wanted rather than making this determination independently.

We did not attempt to determine whether the mix of academic curriculum, the type of majors or areas of concentration offered, or the relative emphasis placed on the three major programs--academic, military, athletics--are at an optimum to produce the desired kinds of graduates. These are matters of continuing concern, study, and change at each academy. Nor did we attempt to assess the quality of the instruction. Since a large percentage of the faculty, particularly at the Air Force and Military Academies, rotates each year, the quality of instruction is a varying condition. Our report on attrition will discuss students' perceptions of the quality of instruction.

We have categorized all of the academies' programs as either academic, military training, or physical development although some do overlap. Each academy has a 4-year academic program leading to a bachelor of science degree. Regional associations, such as the North Central Association of Colleges and Secondary Schools, have accredited the programs. In addition, the Engineers' Council for Professional Development, composed of representatives of the major professional engineering societies, has granted accreditation to certain engineering majors at some academies.

The military training programs are designed to impart the knowledge, skills, and motivation required of an officer. They include classroom instruction and practical training during the academic year. Except in the Merchant Marine Academy, which has an 11-month academic program, summers at the academies are devoted to a variety of military training to broaden the students' experience and knowledge.

The physical development programs include physical education courses, intramural sports, and intercollegiate athletics. They are designed to develop the students' physical attributes, instill physical-fitness habits, and prepare them to train others.

Throughout this report, we will use academy terminology and refer to freshmen as fourth-classmen, sophomores as third-classmen, juniors as second-classmen, and seniors as first-classmen.

SCOPE OF REVIEW

Our field work, completed in June 1975, was performed at the five service academies operated by the Government:

--Air Force Academy, Colorado Springs, Colorado.

--Naval Academy, Annapolis, Maryland.

--Military Academy, West Point, New York.

--Coast Guard Academy, New London, Connecticut.

--Merchant Marine Academy, Kings Point, New York.

We examined the policies, practices, and procedures governing the various academy programs. Also, we reviewed numerous reports evaluating program operations. We discussed our work with officials at both the academies and departmental headquarters and incorporated their comments in our report.

CHAPTER 2

SUMMARY OF OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS

In general, all five academies are producing officers qualified to serve in their respective services and, in the case of the Merchant Marine Academy, in the maritime industry. We believe, however, that several aspects of the academies' programs could be improved, as noted in the following conclusions and recommendations. We also observed several areas of interest at the academies which we believe warrant special consideration although we have not recommended any specific action. We have also commented on several initiatives recommended by the Department of Defense Committee on Excellence in Education, which concurrently reviewed the three Defense academies.

CONCLUSIONS AND RECOMMENDATIONS

Evaluating professional competence (Military, Air Force, and Coast Guard Academies)

The Military, Air Force, and Coast Guard Academies have no systematic programs to evaluate the professional competence of their cadets before graduation and commissioning. They rely primarily on the grades received in individual courses over a 4-year program to insure that each cadet possesses the requisite professional skills and knowledge that the programs are to impart. We noted that many aspects of the professional training programs are not graded and that attendance and participation is below that of many purely academic programs. At the Air Force Academy, in particular, cadets are exposed to widely varying summer programs.

Both the Naval and Merchant Marine Academies require their midshipmen to complete a comprehensive professional examination. The Naval Academy's review is self-generated, while the Merchant Marine Academy uses the Coast Guard licensing examination for Merchant Marine officers. These two evaluations should not serve as rigid formats for the other academies, but as guides they may wish to consider in developing a system to meet their particular needs.

We view these examinations as being similar to other professions' tests of professional competence, such as the bar and certified public accountant examinations. An equally important function of these examinations would be to identify deficiencies within the military training itself. The aca-

demies could then fortify the training and increase student commitment in these areas without unduly expanding these programs.

Recommendations

We recommend that the Secretary of Defense direct the Army and Air Force and that the Secretary of Transportation direct the Coast Guard to establish comprehensive examinations for first-classmen to verify their level of professional competence before commissioning.

Air Force, Army, and Coast Guard officials said that they would study the recommendation to determine whether to take action to implement it.

Assessing graduate performance (Military and Air Force Academies)

Until recently, all the academies relied on informal and somewhat sporadic feedback on graduate performance. The Naval Academy has developed a formal program to solicit the impressions of graduates and their commanders on the preparation their programs provide. This information is obtained after the graduates have been on active duty for a year. The Coast Guard has established a committee of senior officers to periodically assess and report on graduate performance deficiencies.

To further help develop and refine their programs, the Air Force and Military Academies should establish a systematic method to assess graduate performance. We believe the monitoring of graduate performance, from both the graduates' and their immediate supervisors' viewpoints, would enhance the existing informal and formal feedback systems and would give the academies better information on whether or not their programs are producing the types of graduates their services need. All the services may wish to consider implementing longitudinal studies to assess graduate preparation and performance on a long-term basis.

Recommendation

We recommend that the Secretary of Defense direct the Army and the Air Force to establish systematic programs to assess graduate performance.

Army and Air Force officials agreed with our recommendation and were studying the design of graduate performance assessment programs. Army officials said that they were considering a program that would be applicable to graduates of all commissioning sources.

Meeting technical needs
(Air Force and Coast Guard Academies)

All the services need officers with technical academic backgrounds. To satisfy this need, the Military Academy requires all graduates to complete over 120 semester hours of core courses, 65 of which are in technical subjects. The Naval Academy requires 80 percent of its graduates to have academic majors in technical areas. All Merchant Marine Academy midshipmen pursue a technical academic curriculum.

The Air Force Academy academic core curriculum is adequate preparation for most Air Force specialists, and the majors program allows some cadets to specialize to meet the academic prerequisites in the remaining technical areas. However, for more than 10 years, the Air Force has experienced a shortage of officers with certain technical backgrounds, but before 1973 this shortage was not reported to the Academy. The Air Force should broaden its efforts to regularly communicate these specific needs to the Academy for use in continuing to develop and administer its majors program. Further, we believe additional efforts should be made to communicate the Air Force's specific needs and shortages to the cadets for their use in choosing their academic major. This will permit the cadets to better judge the career potential in the area in which they choose to specialize.

The Coast Guard needs most of its Academy graduates to have technical backgrounds because it has not obtained enough technically oriented officers from its officer candidate school. The Coast Guard needs officers with technical backgrounds because (1) most of its postgraduate education programs are in technical areas and (2) officers with technical backgrounds have greater assignment flexibility and more career options.

The Coast Guard Academy, however, has reduced its output of graduates with technical backgrounds from 100 percent in 1964 to slightly less than 70 percent in recent classes. These changes have generally been based on reasons other than changing Coast Guard needs. The Academy's current goal to graduate 80 percent of each class with technical majors has not been met.

Recommendations

We recommend that the Secretary of Defense direct the Air Force to provide the Academy with an annual statement of requirements for officers possessing specialized backgrounds, for use in the continued development and administration of its majors program and for communication to cadets to consider when choosing their majors.

We recommend that the Secretary of Transportation direct the Coast Guard to either

--take additional actions so that at least 80 percent of each class voluntarily selects technical majors to meet projected service needs;

--require at least 80 percent of each class to select technical majors; or

--expand the core curriculum to provide sufficient technical backgrounds for all cadets.

Air Force and Coast Guard officials agreed with our conclusions and recommendations. Air Force officials said that actions had been taken to periodically provide its Academy with information on the requirements for officers with specialized backgrounds.

Upgrading academic faculty (Naval Academy)

About 25 percent of the Naval Academy's academic faculty do not have advanced academic degrees. Most of these are officers teaching professionally oriented courses in which operational experience may be a viable substitute for advanced academic study. Others, however, are teaching English, history, mathematics, and science. Three civilian faculty members also do not have advanced degrees. The lack of academic credentials among the faculty was criticized in a 1966 accreditation report. Since that time the situation has become more pronounced as the percentage of faculty without advanced degrees has increased. In our opinion, the Navy could expect its Academy graduates to be better qualified if the faculty was more academically qualified.

Recommendation

We recommend that the Secretary of Defense direct the Navy to establish a program to insure that all members of the academic faculty possess advanced degrees.

Navy officials agreed with our conclusions and said that actions would be taken to upgrade the academic credentials of military faculty members. They do not plan to require the civilian faculty members to obtain advanced degrees.

Improving sea year program (Merchant Marine Academy)

An integral part of the Merchant Marine Academy's professional training is the sea year program. Midshipmen spend

approximately 10 months at sea aboard merchant vessels observing and participating in many of the activities for which they are being trained. The midshipmen receive 15 quarter credit hours toward the academic requirements for graduation based primarily on a sea year project completed aboard ship. During their training at sea, midshipmen have little contact with the academic faculty. Developing and evaluating the sea year projects is an additional duty of faculty members. This situation has resulted in projects sometimes not reflecting current technology and in dilatory and erratic grading. We believe that this program is a valuable adjunct to classroom instruction and should receive more faculty attention.

Recommendation

We recommend that the Secretary of Commerce direct the Merchant Marine Academy to give greater attention to the formulation and evaluation of sea year projects.

Commerce officials agreed with our recommendation and said that the Academy had taken actions to revise and update sea year projects and to grade them on a timely basis.

OBSERVATIONS ON THE ACADEMIES

Assignment of graduates

The Defense academies have perceived their role as producing combat officers motivated toward a career in the service, and their training programs have been designed with this role in mind. This perception had been reflected in the initial assignments of Military and Naval Academy graduates and, to a lesser extent, of Air Force Academy graduates. During the past 2 years, the services have further restricted the initial assignments, directing more of the graduates into combat assignments. This role of producing combat officers is much narrower than the role defined for the academies by law or in their mission statements--to produce career officers for the services. The difference in role interpretation is significant because, under current practices, graduates are automatically precluded from initial assignment to major components or branches of the service. The difference takes on added significance in light of the impending admission of women to the academies.

At the Military Academy, all medically qualified 1974 graduates chose from four combat arms and four combat support arms of the Army. Two of the combat support arms, Military Intelligence and Military Police, were then excluded from the branches available to medically qualified 1975 graduates.

Also, beginning with the class of 1978, only Rhodes Scholars will be permitted to immediately enter graduate school.

Medically qualified Naval Academy graduates are appointed to unrestricted line (combat) assignments. The only exceptions are those distinguished graduates participating in the immediate graduate education program. However, beginning with the class of 1976, this program has been eliminated.

At the Air Force Academy, 1972 graduates who did not choose flight training were able to select from all but two career fields. Beginning with the class of 1975, the Air Force increased the number of restricted fields to 16. Also, except for certain distinguished scholarship recipients, Air Force programs have been or will be terminated for immediate law or graduate schooling.

During its review of academy operations (discussed later in this chapter), the Committee on Excellence in Education reviewed and approved the initial assignments for 1975 graduates. The Committee directed the academies to submit the projected assignments for 1976 graduates for review by the end of February 1976, to insure consistency in assignment practices.

With the admission of women to the academies, the services will need to reexamine the more limited role of producing combat officers, since Defense Department policy restricts women from combat assignments. In this connection, the services may wish to seek guidance from the congressional oversight committees on the intended role of their academy and whether there should be any restrictions on initial assignments of academy graduates.

Faculty teaching experience

Over 90 percent of the military faculties of the Defense academies are not tenured and rotate every 3 to 4 years. Prior teaching experience is not required; consequently, the faculties of the Military and Air Force Academies are composed largely of inexperienced teachers. At the beginning of each academic year, the Military Academy's nontenured faculty have an average of only 1 year teaching experience, and the Air Force Academy's average is 1-1/2 years experience. The Naval Academy faculty is more experienced because half its members are civilians with an average of 20 years experience.

We expect the faculties of the Military and the Air Force Academies will have more experience as a result of Committee on Excellence in Education initiatives to increase the percentage of civilian faculty members. Presently, only about

1 percent of the faculties at those academies are civilian, but the Committee recommended a study to determine the feasibility of a prospective civilian faculty level of between 5 and 10 percent by 1980.

An apparent anomaly exists in the faculty selection process. Civilian faculty are selected on the basis of demonstrated teaching ability, whereas military faculty members, at the time of selection, are not required to have either teaching experience or formal teacher training. The Military and Air Force Academies conduct short teacher training programs for incoming military faculty. The Naval Academy gives only orientation to new faculty members.

Academy officials say that junior officers are exposed to many situations in which they have instructed others in various military matters. They feel that these experiences, as well as the instructor training programs, adequately prepare new military faculty members. We are not convinced of this. Basic distinctions exist between instructing for military skill or field training in the traditional military environment and fostering intellectual stimulation among college students. This may render the former a less than viable substitute for classroom experience.

The Middle States Association of Colleges and Secondary Schools accredits both the Military and Naval Academies. In its latest report on the Military Academy, the association evaluation team said that the practice of assigning new, young officers to the faculty for a 3-year tour of duty following graduate schooling was commendable and that the classroom instruction at the Academy reaches an exceedingly high level of performance. However, in its comments on the Naval Academy, the evaluation team said that the military faculty tours of duty (2 years at that time) were far too short to be really effective.

We raise these points primarily to emphasize that the military academies are unique and that detailed comparisons with other institutions are difficult, if not inappropriate. The preponderance of military training and the military atmosphere and attitude which prevail at the academies, extending even into the classroom, make the academies unlike any civilian institutions of higher learning. Under these circumstances, extensive rotation of much of the faculty and a limited teaching experience level may be entirely satisfactory and productive. We believe, however, that these are areas which need continuous scrutiny by the academies, the services, and the accreditation bodies. We also suggest the services and the academies consider lengthening the tours of duty for non-tenured uniformed faculty. Because of the extremely high-

caliber students they are attracting, the academies should constantly ask themselves "Is the quality of our faculty commensurate with the quality of the entering students?"

Continuing need to reexamine curriculum

There is a continuing need to study and update the academies' curriculums to keep them forward-looking and in tune with technological advancements and changes in strategically important areas in the world. The academies, using internal and external study groups, have attempted to meet this need through periodic reviews of their programs and should be commended for these efforts. We suggest that, during future reviews, the study groups consider introducing or expanding such courses as those dealing with the application of laser technology and with such foreign languages as Arabic and Japanese, which are gaining international prominence.

The academies must also guard against the introduction of technical, service-related training into the academic curriculum. They should resist any efforts to teach the field manuals as academic subject matter; such topics should be relegated to the military training area if they must be taught at the Academy. Any changes toward making the Defense academies into "trade schools" should be avoided.

COMMITTEE ON EXCELLENCE IN EDUCATION

In 1973, shortly after we began our study of the academies, the Department of Defense established a Committee on Excellence in Education to review and evaluate all educational programs in the Department. The Committee is composed of the Deputy Secretary of Defense, who is the chairman; the Secretaries of the Army, Navy, and Air Force; and the Assistant Secretary of Defense (Manpower and Reserve Affairs). The Committee has visited each of the Department's academies and expressed many of its conclusions to these institutions. The Committee does not plan to issue a comprehensive final report, but in April 1975 a summary of its conclusions and academy initiatives was prepared.

The Committee believed that the academic foundations provided to future officers ought to contain an appropriate number of shared elements. These shared courses would become the common core. The Committee noted that excellence should not be sacrificed for commonality's sake alone. We also caution against any steps toward commonality that do not recognize the unique demands of each service.

The Committee concluded that the Military and Air Force Academies should increase the number of civilian faculty and that the Naval Academy should increase the number of military faculty. They concluded, as have we, that all academic faculty members should possess at least a master's degree in a discipline relevant to the subject they teach. The Committee's recommendation that the Naval Academy increase the faculty's military representation was grounded partially on the belief that junior officers bring their recent operational experience into the classroom. As noted previously in this chapter, restructuring the military and civilian composition of the Naval Academy faculty will affect faculty teaching experience. Since most military faculty do not possess doctorate degrees, increasing that portion of the faculty will either result in lower overall academic credentials or require further educational expenses for military officers. The Committee should not overlook this effect.

The Committee directed that manpower and costs be reported using a uniform methodology and that a detailed analysis be provided to the service secretaries annually. Our report entitled "Financial Operations of the Five Service Academies" (FPCD-75-117, Feb. 6, 1975) provided a comprehensive comparison of academy operating costs and noted variances in staffing and costs for various functional areas. The academies have progressed considerably in developing uniformity in cost reporting.

The Committee noted the paramount importance of the honor codes to the continued strength of the academies. It recommended a minimum of two annual combined meetings of the honor committees to insure that each academy is alert to developments at the others. In earlier visits to the academies, the Committee had noted the variances among the academies, particularly the absence of a clause prohibiting "toleration" at the Naval Academy and the absence of a formal "second chance rule" for violators at the Military Academy.

The Committee directed the services to provide lists of projected assignments for the class of 1976 so that consistency among the academies is maintained. The underlying thrust of this consistency requirement is that most graduates will be directed into combat-oriented assignments. We have noted the impact of this policy earlier in this chapter.

BOARDS OF VISITORS

There is a Board of Visitors for each academy which provides a limited external review and evaluation of academy programs. The Boards of Visitors for the Military, Naval, and Air Force Academies are composed of Members of Congress

and private citizens appointed by the President. Only Members of Congress are on the Boards of Visitors for the Coast Guard and Merchant Marine Academies.

Boards of Visitors meet once or twice a year, usually at the academy, for a few days. Board members are prominent individuals active in their own pursuits. The Boards have no staff and rely mainly on academy presentations for program information. By law the Boards are charged with inquiring into the morale and discipline, curriculum, instruction, physical equipment, fiscal affairs, academic methods, and other academy matters which the Boards decide to consider. Given the limited exposure to the academies and the complex character of these institutions, it is unrealistic to expect the Boards to provide penetrating evaluations of academy programs.

CHAPTER 3

AIR FORCE ACADEMY

TYPE OF GRADUATE

The Air Force Academy, within the broad framework of Federal statutes and Air Force regulations, has developed its own programs with limited formal guidance. These programs are incorporated into the Academy's "15 Year Objective Plan," which is updated and submitted to Air Force Headquarters yearly for approval. The Academy identified only two other headquarters directives concerning what types of graduates it should produce: (1) sufficient pilot-qualified cadets should be admitted so at least 65 percent of each graduating class is medically qualified for flight training and (2) at least 50 percent of each class should be graduated with majors in the basic and applied sciences.

The Air Force also requires that the Academy provide and develop in each cadet:

--A broad military eduction to serve as a foundation for his progressive development as a professional officer.

--Leadership training and skills.

--The physical attributes and skills necessary to meet the requirements of cadet and commissioned life.

The Academy's core curriculum is such that all graduates are prepared academically to serve in almost any Air Force career area and to enroll in most Air Force training schools. However, the core curriculum does not prepare graduates for five engineering specialties, which require specific baccalaureate degrees offered by the Academy: scientific, development, communications-electronics, computer system design, and civil.

In congressional budget hearings for fiscal year 1976, Air Force officials cited shortages since 1962 of new officers with certain technical degrees. Before 1973, when our study of the academies began, neither headquarters nor Air Force Military Personnel Center officials had informed the Air Force Academy of these shortages. The shortages, expected to continue at least through fiscal year 1979, do not seem to have influenced the numbers of cadets enrolled in the various technical majors. While we are not necessarily suggesting that numbers of cadets in the various majors be controlled by regulation or other means, Air Force requirements for officers with specialized backgrounds should routinely be made available to Academy officials and cadets. In this way, both academic advisors and

cadets will be aware of the current career potential of the various specialized fields.

Admission requirements

One of the most important influences on the type of graduate produced is the type of cadet admitted. The operation of the Academy training programs begins with the screening of cadets. Academy officials stated that, by its admission procedures, the Academy seeks to admit applicants with a high probability of success at the Academy and as Air Force officers. Qualifying levels have been established, and candidates compete for appointments on the basis of a composite score that includes such variables as prior academic record, physical fitness, extracurricular activities, leadership potential, academic test scores, and selection panel ratings. Formulas weight each variable, with the academic measures receiving the greatest emphasis.

Competition for appointment is not based entirely on the composite score, because of the congressional appointment system. Also, qualifying levels are waived for many applicants. According to Academy officials, waivers are granted by the Academy to meet the needs of the Air Force, to interject a degree of flexibility in selection, and to recognize that quantitative measures are in imperfect success predictors. Further, academic and leadership qualifying levels have been set lower for applicants who are medically qualified for flight training than for other candidates. We noted that about 9 percent of the class of 1978 was admitted on waivers. The most commonly waived items were the academic composite index; the leadership composite index, a gauge of leadership potential; and an index used to measure nonscience aptitude.

ACADEMIC PROGRAM

When the Air Force Academy was established in 1954, it patterned many of its programs after the Military Academy. A large number of its key officials and faculty had previously taught there. This strongly influenced the curriculum and instructional methods initially employed by the Academy. Some borrowed practices were small classes, ability-grouping, and an emphasis on science and engineering without academic majors. While most of these practices remain in effect, the Academy subsequently established a majors program as explained on the following page.

The academic program is designed to provide a broad general education for all cadets while permitting them to major in their area of interest. Presently, cadets are

required to have a minimum of 145-1/2 academic credit hours to graduate. Cadets choose from over 425 available courses and spend about 2,370 hours in academic classes during their 4 years at the Academy.

Core curriculum

The core curriculum at the Air Force Academy, consisting of 99 semester hours, is the smallest of the three Defense Department academies. (See app. I.)

The basic, or core, courses have two objectives: (1) to provide a broad general education in the basic sciences, engineering and the applied sciences, and the humanities and the social sciences and (2) to impart the education required of a professional officer, such as military history, astronautics, computer science, economics, military law, and international affairs. The 99 semester hours are evenly divided between the basic and applied sciences and the social sciences and humanities, reflecting the philosophy that cadets should receive a broad general education. These courses are designed to prepare a cadet for a broad scope of activities as an Air Force officer and provide a foundation for advanced study later in his career.

The overall composition of the core curriculum has not changed materially in the past 10 years. Changes that have occurred involved such things as the sequence of courses, granting of credit hours, and revision of course content. The curriculum consisted of 103 semester hours in 1965-66 and was expanded to 105 in 1968. In its 1969 reaccreditation review, the North Central Association of Colleges and Secordary Schools commented that the introduction of flight training diminished opportunity for some cadets to take electives. It noted that the proportion of time spent in the academic majors was less than in strong civilian schools and should be increased it if would not detract from the core program.

The Board of Visitors also recommended reducing the number of core courses. Two core courses were subsequently eliminated to allow cadets to take more electives in their majors, reducing core requirements to 99 semester hours and increasing electives to 46-1/2. The Board of Visitors' recommendations also resulted in reducing the total number of courses offered and requiring a course in American history for all cadets identified as deficient in that subject.

Majors

Beginning with the class of 1966, all cadets graduated with an academic major. During the 1974-75 academic year,

the Academy offered 21 majors, including 13 in science and engineering, 7 in social sciences and humanities, and 1 in general studies.

Cadets select and may change their majors. This free-choice system has resulted in a distribution between the basic and applied sciences and the humanities and social sciences close to the 50-50 proportion required by the Air Force. As of July 1974, the projected majors for the classes of 1975-77 averaged 51 percent in sciences and engineering and 49 percent in humanities and social sciences. As mentioned earlier, one factor in a cadet's selection of an academic major should be an awareness of Air Force requirements for officers with certain specialized backgrounds.

While the core curriculum concentrates on preparing Academy graduates for entry into almost any Air Force career field, the majors program allows for specialization in one of the career fields requiring a specific baccalaureate degree.

Military training within the academic area

Although a division exists between academic pursuits and military training, the latter is sometimes included in the academic program. In addition to instructing and grading cadets academically, faculty members participate in military training in evaluating cadets' conduct, leadership, and officer potential by preparing attendance rosters, offense reports, cadet interview-evaluations, and cadet information reports. These reports identify late and absent cadets; any exceptional incidents, good or bad, of an academic or military nature; serious or repeated offenses; and individual faculty ratings of each cadet in subject aptitude, attitude, application, military appearance, and officer and instructor potential.

This information is used by class committees, consisting of faculty, Commandant, athletic, and surgeon representatives, in recommending disposition of academically deficient cadets, with consideration given to ratings in all areas. Thus, two academically deficient cadets with the same academic grade point average might receive different treatment based on their military performance and aptitude.

Representatives of the Commandant of Cadets stated that information generated by faculty members is used for several different types of cadet evaluations, including:

--Cadet chain-of-command selection.

--Aptitude advisory committees' recommendations for action such as aptitude probation.

--Commandant's Disciplinary Board disposition of cadets with conduct problems.

--Commandant's boards' decisions whether to retain or dismiss cadets on aptitude or conduct probation.

--Air Officer Commanding performance ratings.

--Military Order of Merit.

--Evaluation of cadets on aptitude probation.

Air Officers Commanding sometimes attend academic classes to observe cadets assigned to their squadrons. They observe such things as classroom participation, military bearing, conduct, academic ability, and behavior in a group. They also talk to faculty members about cadets with academic, aptitude, or conduct problems.

Cadets have complained about having received both demerits and a reduction in academic grade for a single offense committed in an academic course. Academy officials explained that this occurs only when the offense is such that it degrades academic performance as well as constituting a dereliction of duty (such as failing to prepare a graded assignment). Since proper military performance is considered a duty at service academies, Academy officials think it proper to assess both an academic and a disciplinary penalty for such an offense. They do not consider these separate punishments, but part of the same punishment.

Academic faculty

Except for one State Department Foreign Service officer, the academic faculty is made up of military officers, but there are plans to add three civilians in the fall of 1975. The Academy considers both academic credentials and military performance when selecting new faculty members. Mandatory qualifications for selection are outstanding performance, at least a master's degree in an appropriate discipline, and voluntary acceptance of selection. Performance is defined by officer effectiveness ratings, comments accompanying the rating interviews, and letters of recommendation. We were informed that exceptions can be granted. For example, an applicant with an exceptional academic background in a high-need area might be offered an appointment despite a less than outstanding effectiveness rating. Also, Air Force regulations specify that officers who do not intend to pursue a service career are unacceptable for faculty assignments.

The education level of the faculty as of October 1974 was 28 percent (158) doctorates and 71 percent (400) masters degrees. Allied officers with bachelor's degrees teaching foreign languages composed the remaining 1 percent.

In addition to the qualifications already discussed, the Academy desires new faculty members to:

--Have the rank of major or below.

--Possess outstanding academic credentials, previous college-level teaching experience, or professional experience directly related to their discipline.

--Have completed an overseas tour.

--Have more than 3 years but less than 10 years of active commissioned service exclusive of time spent as a student.

New faculty members are normally given the academic rank of instructor. Of the 267 instructors at the Academy in academic year 1974-75, only 2 were ranked higher than major. A comparison of academic majors, Air Force career specialties, and previous duty assignments of all faculty members demonstrated that their background and experience correspond to their subjects. Approximately 98 percent of the faculty teach in areas directly related to their academic specialty or career experience. Over 70 percent of the faculty had completed an overseas tour before being assigned to the Academy.

The Academy also desires 50 percent of the faculty to be flight-rated officers in order to support cadet flying programs and to motivate qualified cadets to pursue flying careers by bringing operational flying experience into the classroom. Presently, 34 percent of the faculty is flight rated.

The Academy does not require formal teacher training for instructors before Academy assignment. Academy officials assume that faculty members can become competent instructors because they possess the required academic credentials and outstanding performance records in the Air Force. Newly assigned instructors are briefed on Academy procedures and facilities and are required to complete departmental training before they begin teaching. In addition to studying appropriate Academy policies, they practice teaching techniques in simulated classes made up of experienced faculty members. During the academic year, each instructor's classroom performance is monitored by his supervisors, who offer constructive criticism.

There are no required update or continuing education requirements for the faculty. The Academy holds department seminars and meetings and provides materials and professional journals to keep the faculty up to date. The majority of the faculty rotates every 4 years, and this, according to Academy officials, introduces fresh ideas. Sabbaticals are offered every 7 years to permanent faculty members.

MILITARY TRAINING

The military instruction program under the Commandant of Cadets consists of classroom, field, special summer, airmanship, and navigation training, plus supplementary training provided through the Cadet Wing. To graduate, a cadet must complete 6-1/2 semester hours of military studies during the fall and spring semesters and 20-1/2 semester hours of military training in a wide variety of summer programs. Fourth-class cadets must also take Airmanship 101, a noncredit introductory sailplane course. A typical cadet spends approximately 2,400 hours in military training programs.

Precommissioning core curriculum

The major areas of the precommissioning core curriculum, which all Air Force officer training programs must include, were developed and approved by headquarters in 1971. The core curriculum is intended to provide each cadet with the basic knowledge, skills, and attitudes essential to effective performance as a newly commissioned Air Force officer, excluding training necessary for his career specialty. The required subject areas are:

--Air Force heritage

--Air Force leadership

--Air Force management

--Communicative skills

--Military fundamentals

--Military justice

--Orientation for initial commissioned service

--Physical development

--Professional officer concepts

--U.S. Air Force and national security

--The military and society: current issues

Programs and courses developed by the Academy and offered through the Commandant cover each of these subject areas except certain subtopics covered under the Dean of Faculty and physical development, which is handled by the Director of Athletics.

Cadets' proficiency in these subjects is considered adequate if they pass the courses. Instructor handbooks for each course define desired learning outcomes, and performance is measured through examination or observation. If minimum standards are not met, either extra training or a failing grade is given.

A cadet's classroom military training consists of seven required military studies courses that cover the organization, operation, and role of the Air Force, communicative skills and techniques, and Air Force combat operations and tactics and prepare the cadet for the transition to officer status.

Summer training

Basic cadet training for newly arrived cadets is a major summer training area. According to Academy officials, the transition from civilian to cadet life is made at this time, as previous symbols of prestige and individuality are exchanged for rigorous discipline, instantaneous obedience, attention to detail, and punctuality. Among the subjects are military customs, drills and ceremonies, small arms, land navigation, first aid, individual combative techniques, patrolling, and small unit tactics.

Another major area of summer training is the survival, evasion, resistance, escape program for third-classmen. This is a 20-day program covering survival techniques, the "American Fighting Man's Code of Conduct," and escape and evasion techniques. Highlights of the program include a mock prisoner-of-war compound and a 4-day trek in the mountains with minimum rations to demonstrate evasion techniques. The course is intended to increase confidence and build character and leadership under stress situations; it fulfills the Air Force requirement for survival training. If they did not take it at the Academy, most cadets would have to take this training after graduation.

In addition to the survival training, third-class cadets must participate in one of the following 3-week programs:

--Basic airborne training--basic parachute jumping.

--Operation non-com--serving at Air Force installations to gain insight into the role of enlisted personnel.

--Soaring--instruction in ground school, dual and solo flights in sailplanes at the Academy.

Cadets must take 6 weeks of training in each of their last two summers. They can choose from a variety of 3- and 6-week training options, but one choice must be a leadership position training fourth- and third-classmen and another must be a tour of duty with an Air Force unit. These and the other military training and studies programs are intended to enhance military skills, provide opportunities for leadership and responsibility, place cadets in new and demanding environments which will broaden and challenge them, and make them aware of personal strengths and weaknesses.

Listed below are the special training options and the enrollment during the summer of 1974.

Description	Enrollment
Operation non-com	545
Soaring	150
Basic airborne training	529
Operation third lieutenant	953
Leadership positions during basic cadet training	1,286
RECONDO training	45
Underwater demolition/scuba	48
Counselor positions at Boys State encampments	20
Instructor positions at Boy Scout camps	36
Administrative positions at the Academy	61
Counselor positions at man-power unlimited camp	20
Leadership positions during survival, evasion, resistance, escape training	472
Cadet navigation instructor	19
Cadet soaring instructor	41
Basic free fall parachuting	150
Cadet parachute instructor	28
Special programs	41
T-41 flying training	140
Summer research	81
Air training command leadership	15
French language training	5

We question the relevance of some of these training options--such as underwater demolition/scuba, Boys State, Boy Scouts, and man-power unlimited--for preparing cadets to be Air Force officers. Academy officials said these options provided leadership training and were considered appropriate. While recognizing that these options may provide such training, we believe that other training options would be more relevant to the Air Force and provide the same benefits. Accordingly, we suggest that the Academy reconsider the relevance and value of these options.

Airmanship and navigation

The Academy offers airmanship courses relating to parachuting, sailplanes, jets, and conventional aircraft. Cadets are awarded academic credit for most of these courses, although only one, sailplane introduction, is required. Some of these courses are offered in a series so that cadets may progress to the instructor level, training other cadets. All first-class cadets who volunteer for pilot training following graduation are required to complete a 5-semester-hour course in light-aircraft flying. Cadets taking this training during the academic year substitute it for regular academic courses.

The Academy also offers several navigation courses involving classroom instruction, simulators, and flight missions. These courses, although optional, may be used to meet the total academic requirements for graduation.

We noted that several of the courses leading to Federal Aviation Administration pilot ratings require cadets to pay for aircraft rental from their own funds. All other airmanship training offered by the Academy is free of charge.

Cadet Wing

An integral part of the Academy's overall training program is conducted through the Cadet Wing. The Wing functions as a leadership laboratory, giving cadets an opportunity to manage a military organization through the cadet chain of command, which was established to

--provide opportunities for command and staff duties;

--operate and administer the Wing; and

--administer and enforce the standards of conduct, behavior, and performance required of the Wing by the Commandant and his officer chain of command.

The Wing is organized like an operational Air Force unit. Cadets manage it under the supervision and direction of the Commandant, who delegates authority to the Deputy Commandant for the Cadet Wing and to group and squadron Air Officers Commanding. These officers supervise the routine administration of the Wing by cadets appointed from a promotion list made by the Commandant. The Cadet Wing Commander and four Cadet Group Commanders are appointed for a full year, while other command and staff positions are changed three times yearly to allow most cadets to fill at least one leadership position. Cadets manage the day-to-day operation of the Wing, but ultimate authority and responsibility rest with the regular-officer chain of command. Air Officers Commanding provide guidance to the cadet leaders and serve as counselors and disciplinarians.

Discipline

The Academy has established standards of conduct and aptitude, many of which are encompassed in the Honor Code, the Professional Ethics Program, and the conduct system. Cadets identified as not meeting the prescribed standards may be separated. During the 1973-74 academic year, 32 cadets resigned as a result of honor violations and 12 were dismissed because of aptitude and conduct deficiencies.

The Honor Code proscribes lying, stealing, cheating, or tolerating any of these acts. A Cadet Honor Committee composed of elected representatives from all cadet squadrons is responsible for training entering cadets, hearing reported cases, and guarding against cadet practices inconsistent with the Honor Code. Reports of suspected offenses are generally referred to an investigating team of three honor representatives who determine whether there are sufficient grounds to warrant an honor hearing. Substantiated cases are heard by an eight-member honor board, to which all concerned parties may present evidence. Findings of guilt must be by unanimous secret ballot. Cadets found guilty are considered for discretion, which permits them to remain at the Academy. There are no established criteria for granting discretion, but a central consideration is usually whether the individual has reassessed his personal integrity.

Cadets found guilty and not granted discretion are expected to resign. They are counseled by an Air Force lawyer as to their options. If they refuse to resign, an officer conducts a separate investigation of the case. The case may then be referred either to a board of officers for a further hearing or to a trial by court martial, or the cadet may be permitted to stay despite the honor board's finding. The board of officers recommends either dismissal or retention to the

Superintendent and eventually to the Secretary of the Air Force, who makes the final decision.

The Academy also has an Ethics Committee, organized similarly to the Honor Committee. The purpose of this committee is to guide the Wing in improving ethical standards and practices. In addition to providing instruction, the committee also reviews conduct deficiencies for possible ethical breaches. Suspected ethical misconduct may be reviewed by an ethics committee disciplinary board. The board may recommend administrative punishment if its hearing confirms that a violation has occurred.

Cadet life is governed by comprehensive regulations. Detected breaches of these regulations may result in various forms of disciplinary action, including demerits, loss of privileges, and restriction to the Academy. Repetitive or especially gross infractions may result in conduct probation and eventual dismissal.

PHYSICAL DEVELOPMENT

The Academy's physical development program includes physical education, physical fitness monitoring, intramurals, and intercollegiate athletics. An average cadet spends approximately 720 contact hours in department of athletics programs and receives 4-1/2 semester hours for physical education, 8 semester hours for intramural intercollegiate participation, and 2 semester hours for physical development activity during basic cadet training.

The physical education program is scheduled over 4 years, with electives offered only in the last year. Fifteen courses are required and six electives are offered to provide curriculum flexibility. A first-class cadet may take two electives such as scuba diving, ice skating, or racquetball. The courses are divided into three categories: combatives, such as boxing and judo, for confidence in self defense; aquatics, such as survival swimming and lifesaving; and carry-over skills, such as golf and handball, to provide a continuing interest in sports and physical fitness.

All cadets except intercollegiate athletes and those with medical excuses are required to pass a five-event physical fitness test each semester through their second-class year. The test consists of pullups, pushups, the standing broad jump, and a 600-yard run. Requirements in each event become slightly more difficult through the first 2 years. Cadets failing to achieve a passing score are placed in a reconditioning program and are subject to academic probation. First-classmen are tested on a 1-1/2-mile run in lieu of the physical

fitness test. The physical fitness test was developed by the Academy for its own use, while the 1-1/2-mile run is an Air Force-wide means of evaluating physical conditioning.

Intramurals program

The program is administered and managed by cadets under the supervision of the chief of intramurals and the officers in charge of the respective sports. All cadet officers, coaches, and referees rotate each intramural season, giving many cadets an opportunity to function in some official capacity. All cadets, except intercollegiate athletes, those medically excused, and individuals in certain extracurricular activities, are required to participate during all three seasons, and each squadron in the Wing is represented by a team in each sport.

Cadets compete in the following 16 sports:

Fall	Winter	Spring
Football	Boxing	Basketball
Lacrosse	Wrestling	Rugby
Cross country	Handball	Swimming
Flickerball	Water polo	Soccer
Tennis	Squash	Team handball
	Volleyball	

Intercollegiate athletics program

This program encompasses 18 sports. During intercollegiate and practice seasons, intercollegiate athletes are excused from intramurals, plus one 4-week session of physical education. While participating in contests, athletes are also excused from parades, in-rank inspections, military training, and a limited number of academic class hours. However, they are responsible for completing all academic class assignments.

EVALUATIONS OF PROGRAMS AND GRADUATES

The Academy insures that its programs are producing graduates who meet Air Force needs by a variety of periodic internal and external reviews. However, there is no periodic process for evaluating how well cadets as a group have been prepared for their future assignments. Also, no comprehensive examination is given before graduation to measure the cadets' retention of the professional knowledge needed in their new roles as second lieutenants.

Academy officials stated they employ standards for measuring cadets' performance throughout the 4-year program. These evaluations include the total grading system--academic, military, and athletic--as well as the conduct and aptitude systems.

Air Force and Academy officials cited several methods they use to determine that Academy graduates fulfill service needs. They are:

--The Air Force officer evaluation system, which includes officer effectiveness report, promotion boards, selection for advanced education, assignment selection, and awards and decorations. This has been cited as the best means for evaluating officers to insure that they are meeting service needs.

--Feedback on graduate performance from faculty members and other new Academy officials with recent Air Force operational experience that included direct contact with Academy graduates.

--Informal briefings to the Superintendent by senior officers at the annual Air Force Commanders Conference.

--Feedback obtained from various senior officials by the Air Force Deputy Chief of Staff, Personnel, who has operational control of the Air Force Military Personnel Center, which executes Air Force military personnel plans and programs.

Except for the officer evaluation system, the above methods for evaluating graduate performance are relatively unstructured and fragmentary in assessing each cadet's preparation.

Air Force officials stated that their policy on graduates' initial assignments is designed to insure that the graduates meet Air Force needs. Graduates in the class of 1975 were assigned to a limited number of career fields, including combat (pilot, navigator, etc.), direct combat support (weapons controller, maintenance, etc.), and highly technical fields (development engineer, scientific, etc.). We noted, however, that some exceptions to this policy were granted. For example, as in previous years, several 1975 graduates were assigned to the Academy for 1-year tours as athletic coaches before assignment in one of the career areas mentioned above. We also noted that although 80 to 85 percent of recent graduates were qualified to enter flight training, only 65 to 75 percent actually did so. Ninety-four percent of the class of 1975 who were medically qualified chose to enter flight training either on their initial assignment or after completing special programs

such as postgraduate education. This may be partly due to the reduction in alternative assignments available to this class.

The Air Force noted that most of the field work to monitor graduate performance is done by Academy personnel, then reviewed by Air Force headquarters. Academy officials emphasized the difficulty of objectively evaluating graduate performance. They do not predetermine graduate performance standards or evaluate performances of the graduates as a whole. They have, at times, gathered information on graduates, some of which has been used for group comparisons with Air Force officers from other commissioning sources.

In conjunction with its 20th anniversary, the Academy is conducting a comprehensive study--incomplete at the time of our review--of its policies, programs, and organizational structure. To assist in the study, the Air Force Academy Association of Graduates conducted a broad opinion survey of the Academy's first 15 graduating classes. The survey solicited comments from the graduates on many aspects of the Academy's programs and how well it prepared them for their careers. Graduates were asked for suggestions for improving the programs. The Academy is to be commended for its efforts to evaluate these programs, and the information gathered from the survey should be extremely helpful in assessing and improving its programs.

Accreditation

The Academy's bachelor of science degree was accredited by the North Central Association of Colleges and Secondary Schools in 1959 and reaccredited in 1969. In 1973, the Engineers' Council for Professional Development accredited the six engineering majors for 6 years, the maximum accreditation period.

Board of Visitors

The Academy's Board of Visitors is composed of four Senators, five Representatives, and six Presidential designees. The Board generally meets twice each year and files an annual report on its findings. During the past several years, the Board has commented on such matters as attrition, curriculum, harassment of fourth-classmen, and admission policies.

CONCLUSIONS

The Academy's programs are designed to produce qualified officers as directed by the Department of the Air Force. Besides having a major in a specific field, the cadets have re-

ceived a broad general education. The academic program is adequate preparation for most Air Force specialties, and the majors program allows for specialization to meet the academic prerequisites for the remaining technical career areas. Since the Air Force has for more than 10 years been short of officers with certain technical backgrounds, the Air Force should report these specific needs to the Academy on a regular basis for the continued development and administration of its majors program. Further, additional efforts should be made to communicate the Air Force's specific needs and shortages to the cadets to consider when choosing their majors. While we concur that it would be impractical to require cadets to major in fields outside their interests and capabilities, this information would permit the cadets to make more informed judgments of the career opportunities in their chosen areas of specialization.

There are no systematic procedures to evaluate the professional competence of cadets at the time of graduation and their performance as a group afterwards, or to provide graduate performance data to the Academy to use in modifying its program. The Academy relies primarily on its grading system to assure that the cadets possess the requisite knowledge and skills for their new roles as second lieutenants, but much of the training is ungraded. The adoption of a comprehensive professional examination would insure that all cadets would be properly prepared for their new assignments. This examination would be similar to professional competence tests, such as the bar or certified public accountant examinations, required by other professions.

In order to aid the continuing development of its programs, the Academy should establish a systematic method of assessing graduate performance. Monitoring graduate performance from the vantage points of both the graduate and his immediate supervisors would enhance the existing formal and informal feedback systems. It would give the Academy better information on whether its programs are producing the type of graduates the Air Force needs. This would best be accomplished on a regular rather than an ad hoc basis.

The Naval Academy has established such evaluation programs, which are described in more detail on pages 41 to 43 of this report.

RECOMMENDATIONS

We recommend that the Secretary of Defense direct the Air Force to:

--Provide the Academy with an annual statement of requirements for officers possessing specialized backgrounds, for use in the continued development and administration of the majors program and for communication to cadets to consider when choosing their majors.

--Establish a comprehensive examination for first-classmen to verify their level of professional competence.

--Establish a systematic program to assess graduate performance.

AGENCY COMMENTS

Department of the Air Force officials agreed with our findings and conclusions. They stated that actions are being taken to provide the Academy with information on the requirements for officers with specialized backgrounds and that studies were being conducted to determine whether to take further actions on our other recommendations.

CHAPTER 4

NAVAL ACADEMY

TYPE OF GRADUATE

Naval Academy officials determine the courses, their content, and the scope of other programs independently, with only periodic external guidance on specific curriculums. The Chief of Naval Operations' most comprehensive guidance in recent years was to direct the Academy in 1972 to supplement its basic baccalaureate program with advanced electives leading to various academic majors. He also requested that the military and professional training be broadened to better prepare graduates to assume the varied duties of commissioned Navy officers. Further, though limited, guidance emanates from the Board of Visitors, an academic advisory board; the Middle States Association of Colleges and Secondary Schools and the Engineers' Council for Professional Development, which accredit the Academy; and staff discussions with Navy officials.

The Naval Academy has determined that all its graduates must be immediately assignable to any of several specific positions aboard a surface ship. This requirement is detailed in a series of professional competency objectives, which transcend both the academic and military training programs at the Academy. The Academy is currently changing these objectives to emphasize the broader objective of being well versed in Naval science and warfare fundamentals. This modification reflects recent changes in Navy officer-specialty training programs and the initial assignment pattern for recent classes.

Through their manpower requirements, the four major naval communities (aviation, nuclear power, surface warfare, and the U.S. Marine Corps), who are the primary users of Academy graduates, and the Chief of Naval Operations indirectly affect the Academy's programs. The Chief of Naval Operations in 1974 requested that 80 percent of each class enroll in technical academic majors. The Academy then had a goal of producing 70 percent technical majors and 30 percent social science and humanities majors. This change was based primarily on the needs of the nuclear power and surface warfare communities. The aviation community recommended that 70 percent of each entering class be physically qualified for pilot training. Although no prescribed number of graduates are required for aviation training, they felt that with this portion of the class originally qualified, a reasonable number would graduate eligible for the program. The Marine Corps seeks to attract up to one-sixth of each

graduating class but has not reached this number in recent years. The nuclear power community has also fallen short of its goal of obtaining 250 graduates from each of the two most recent classes.

The Academy's physical development programs are intended to develop physical fitness, a competitive nature, and the ability to train and instruct others. The programs are developed internally. The physical education standards are not directly related to service requirements but are based on the performance of the midshipmen as a group.

The desires of the four major naval communities have also affected the admissions process. Because of the need for more graduates with technical degrees, the Academy carefully screens those applicants who have not taken available high school physics courses. Academy officials have identified a close correlation between the decision to avoid quantitative physics courses in secondary school and a low expectancy of enrolling in a technical major. Each applicant is evaluated on the basis of scholastic aptitude scores, high school rank-in-class, recommendations, and extracurricular activities. Admissions officials numerically weight these factors and have specified qualifying levels for the mathematics and verbal scholastic aptitude tests. The qualifying level for mathematics was waived for 239 of the 1,510 members of the class of 1978 and the verbal score was waived for 255. Both scores were waived for 96 entrants.

Academy officials do not consider these as waivers, but prefer to call them "exceptions" based on their judicious screening of all factors. The end result, however, is to admit some applicants who are below the qualifying levels while turning away others who exceed them.

ACADEMIC PROGRAM

From its organization in 1845 until about 1958, the Academy was viewed by many critics as a "trade school" due to its emphasis on the applied and descriptive aspects of the primarily technical disciplines in its academic curriculum. The curriculum was essentially identical for all midshipmen. Academy officials recognized that rapid technological and scientific advancements were rendering their emphasis on the applied aspects of the curriculum obsolete. As a result, major changes to the academic program were begun in the late 1950s. These changes included allowing students to validate courses previously taken at other colleges, offering advanced electives leading to minors and majors for some students, and permitting qualified students to carry academic overloads.

Regardless of major, all midshipmen are required to complete or validate a certain number of core courses totaling 105 semester hours. Nineteen semester hours of purely professional courses, such as navigation, tactics, and leadership, are included in this core curriculum. (See app. I.) Several of the core courses are offered at various levels, based on the student's aptitude, academic major, and interest. Among these are four levels of English, three levels of mathematics, and two levels of physics. Midshipmen majoring in certain technical areas do not take some core courses with a predominantly naval emphasis, but substitute more advanced courses emphasizing theoretical aspects rather than naval applications.

The nuclear power community has recently shown concern about the large number of midshipmen not taking higher level mathematics and physics courses. They have expressed a desire to obtain only graduates in majors requiring both. They contend that, unless an individual can undertake a physics course which includes differential equations and absorb mathematics at an intensive rate, he should not be considered a technical major. The Academy contends that the final level of knowledge attained should be the determining factor and not the rate of learning. They also maintain that the lower tracks of mathematics and physics are sufficient to meet the nuclear power community needs as long as the midshipman adds a course in differential equations in his first-class year, after he has chosen an assignment to the nuclear power program.

The Academy has recently initiated a remedial program for about 25 percent of the graduates who select the nuclear power warfare specialty. Under this program, about 50 graduates are directed to attend additional mathematics, electronics, and physics courses at the Academy in lieu of taking graduate leave. Academy officials insist that these students are fully qualified for immediate assignment to the Nuclear Propulsion School, but the graduates are given the additional instruction to "brush up" on certain areas of weakness while awaiting entrance.

Majors

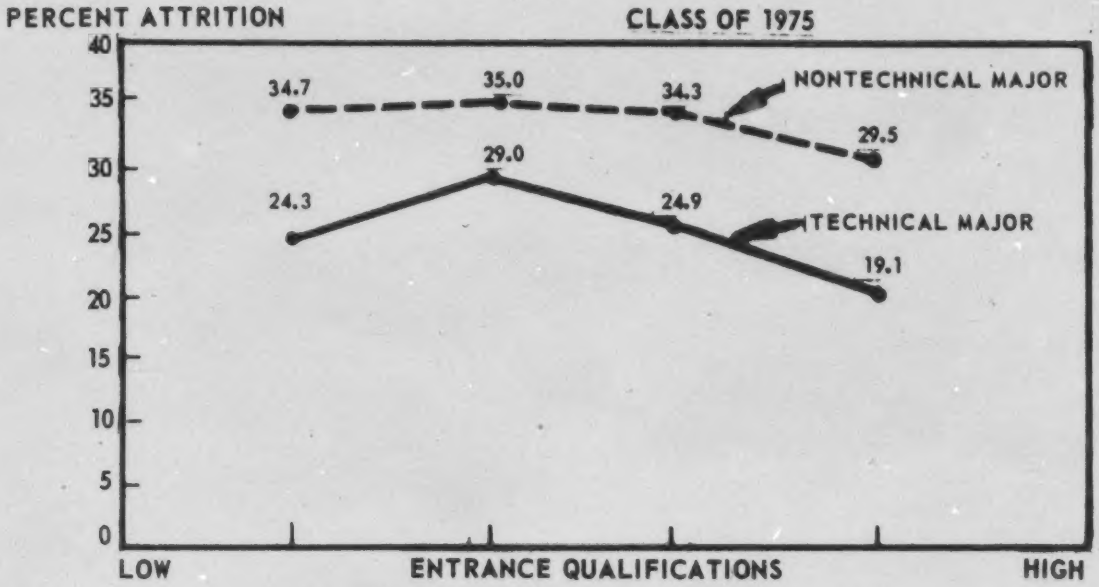
The Academy attempted to expand elective courses to 25 percent of the academic curriculum in 1964, but this figure was reduced by the Secretary of the Navy to 15 percent. Students desiring to complete an academic major were compelled to take academic overloads, but all were programed to complete an academic minor in an area of choice. The Middle States Association of Colleges and Secondary Schools' 1966 reaccreditation report commented favorably on the minors program, but cautioned against rapid efforts to institute academic majors. The report stated that majors requiring

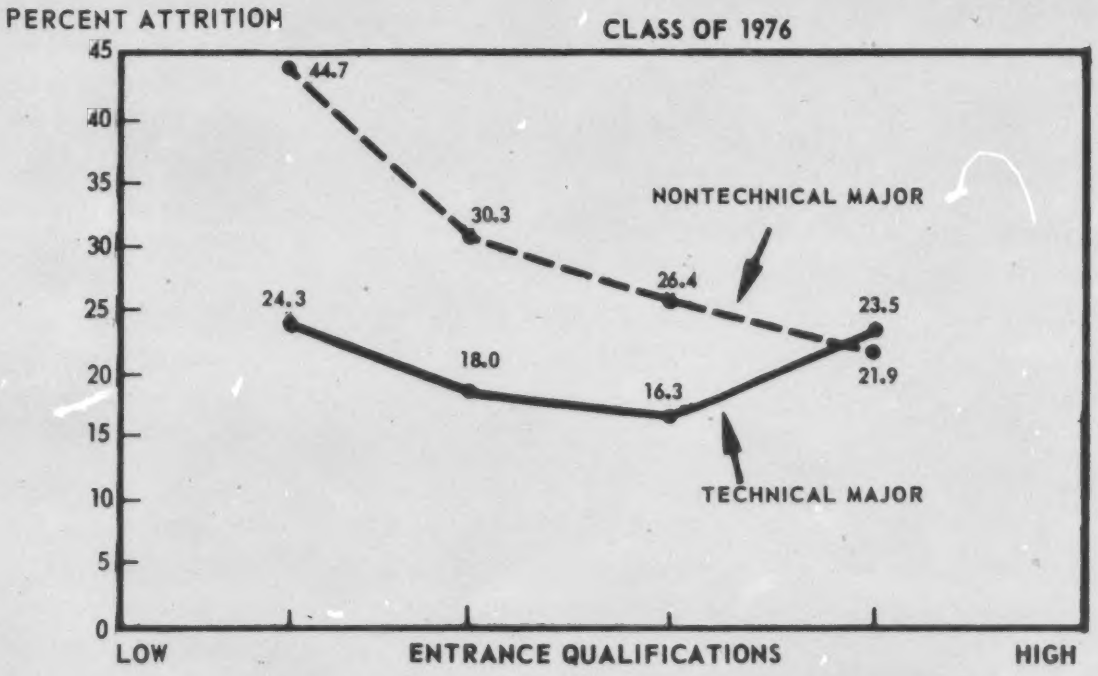
many courses might upset the balance in the core curriculum at the Academy. Nevertheless, the Academy proceeded with a majors program requiring all midshipmen beginning with the class of 1971 to complete an academic major.

The Academy currently offers 17 majors and is still accredited by the Middle States Association of Colleges and Secondary Schools. The major-related courses total between 30 and 41 semester hours in addition to the core curriculum. Seven of these are engineering majors, which are further accredited by the Engineers' Council for Professional Development. Another eight of the majors are technical and include mathematics, chemistry, and management. The two nontechnical majors, humanities and social science, include several options such as foreign languages, history, and economics. Because of the Academy's requirement to graduate 80 percent of each class with technical majors, about 3 percent of the class of 1978 had to take their second choice for a major.

Higher attrition for nontechnical majors

Besides the need to keep pace with technological developments in the Navy, another reason for instituting the majors program and offering different course levels was to attract and retain more diverse applicants. One adverse effect of the majors program appears to be a higher attrition rate among nontechnical majors which is not affected by entrance qualifications. We compared entrance qualifications with the attrition rates for the classes of 1975 and 1976 based on their academic majors. As shown by the following graphs, the attrition rates among nontechnical majors are consistently higher.


PERCENT ATTRITION
CLASS OF 1975
40
35
30
25
20
15
10
5
0
34.7
35.0
34.3
29.5
NONTECHNICAL MAJOR
29.0
24.3
24.9
TECHNICAL MAJOR
19.1
LOW
ENTRANCE QUALIFICATIONS
HIGH


PERCENT ATTRITION
CLASS OF 1976
45
40
35
30
25
20
15
10
5
0
44.7
30.3
NONTECHNICAL MAJOR
26.4
24.3
23.5
18.0
21.9
16.3
TECHNICAL MAJOR
LOW
ENTRANCE QUALIFICATIONS
HIGH

To explain this phenomenon, academy officials hypothesize that humanities and social science majors may become more interested in their academic pursuits than in naval careers. Due to the relatively large number of mathematics, science, and engineering courses required for even nontechnical majors, these students cannot pursue their chosen major as deeply as in civilian schools. Engineering students, on the other hand, take as many technical courses as they would in a comparable civilian engineering curriculum and receive a designated engineering degree.

Academic faculty

Historically, the Naval Academy's academic faculty has been about half civilians and half military personnel. Academy officials stated that this "50-50" mix for their 522-member faculty is a reasonable departure from the virtually all-military faculties of the Military and Air Force Academies for several reasons. Their primary rationale is that insufficient Navy and Marine Corps officers have doctoral degrees, indicators of academic excellence in a faculty. Because there are few assignments away from the Academy requiring doctoral degrees, they feel it is not cost effective to train military officers to this level.

About 50 percent of the military faculty have no advanced academic degrees. Some of them are teaching professional subjects, such as "Naval Weapons Systems" and "Operations and Tactics," in which operational experience is considered a viable substitute for advanced academic study. Twenty of these officers, however, are teaching English and history courses, and another 14 are teaching mathematics and the basic sciences. The Middle States Association of Colleges and Secondary Schools' 1966 reaccreditation report criticized the academic credentials of the military faculty members. The report recognized that officers without advanced degrees are capable of teaching Navy-related courses, but questioned the assignment of such individuals to teach such subjects as English, history, and mathematics. Nevertheless, the portion of military faculty without advanced degrees has risen from 43.8 percent in 1965 to 50.7 percent in 1974.

After reviewing the composition of the Naval Academy's faculty, the Committee on Excellence in Education concluded that the majority of faculty members should be highly qualified military officers. "Highly qualified" was defined as having an outstanding record of military service plus the requisite graduate education. The Committee said that the Department of the Navy and the Academy should study the feasibility of increasing the military faculty to 65 percent

as of 1980, and by that time all those teaching academic courses should possess graduate degrees. In the long term, the Committee said the Naval Academy should more nearly approximate the proportion of military faculty at the other academies.

Civilian faculty members are appointed by the Superintendent under Civil Service Commission regulations and serve a 1-year probationary period. The Secretary of the Navy has limited to 67 percent the number of civilian positions which can be tenured, and the Academy is currently at this limit. Academy regulations require civilian professors and associate professors to have doctoral degrees, and instructors and assistant professors to have master's degrees. During the past 6 years, all new civilian faculty members have either had a doctoral degree or completed all course work toward such a degree. Currently 164 of the 253 civilian faculty members hold doctoral degrees, 86 have master's degrees, and 3 have only bachelor's degrees. One of these three is working on his doctorate, which he expects to receive in the fall of 1975. The other two were hired more than 20 years ago, when an advanced degree was not required. The Academy has no plans to require these two individuals to obtain advanced degrees.

MILITARY TRAINING

In addition to 54 semester hours of professionally oriented courses offered by the academic departments, military training includes summer programs, drills and parades, and practical leadership training through the Brigade of Midshipmen under the direction of the Commandant of Midshipmen. A professional development board composed of senior military and civilian personnel from both the academic departments and the Commandant's office determines the objectives and scope of these programs.

Academic year

Throughout the academic year, the Commandant provides a lecture series which encompasses such topics as new developments in weapons, officer fitness reports, and the Sino-Soviet threat. The primary emphasis of this lecture series, however, is to introduce the functions of the various naval communities. Briefings by naval communities' representatives address such diverse topics as graduate education opportunities in the Marine Corps and naval flight officer career patterns.

The Commandant's office also presents a 4-year program entitled "The Professional Officer and the Human Person."

This program concentrates on human worth and the dignity of the individual and addresses drug abuse, morals, ethics, and other topics.

Summer activities

Fourth-class midshipmen participate in an 8-week indoctrination period during their first summer at the Academy. Third-classmen spend 6 to 8 weeks at sea in a wide range of tasks supervised by commissioned officers and senior enlisted personnel. Among their activities and duties are training in the engineering, weapons, and operations phases of the ships' operation and standing watch.

Second-class midshipmen spend 4 weeks making orientation visits to surface warfare, nuclear power, naval aviation, and U.S. Marine Corps training installations. Each midshipman obtains a representative look at these four naval communities. (We note that similar orientation tours conducted for Military Academy and Air Force Academy cadets were eliminated several years ago as not being cost effective.) They then receive a 1-week introduction to ship damage control at a naval installation. The remainder of that summer includes

--2 weeks at the Academy taking an academic course in public communications;

--a professionally oriented course in small ship operation; and

--a 5-day exercise at sea performing all routine shipboard duties, using the Academy's fleet of yard patrol craft.

Most first-class midshipmen spend about 4 weeks at sea serving as junior division officers. Most spend an additional 4 weeks at the Academy helping indoctrinate the fourth class. Some midshipmen may spend the entire training period at sea.

Midshipmen spend a large portion of their third- and first-class summers away from the Academy and not under direct Academy supervision. To control and supplement this training, the Academy provides study manuals which serve as guides for the midshipmen and outlines for the ship's commanding officers. Third-classmen receive oral examinations aboard ship and an after-cruise exam upon returning to the Academy. As discussed later, first-classmen are tested under the Junior Officer Readiness Review.

Brigade of Midshipmen

Practical leadership experience for the 4,300 Academy students is provided primarily through the Brigade of Midshipmen, which is subordinate to the Commandant of Midshipmen and his staff. Among this staff are 42 commissioned Brigade Officers, who maintain offices within the student dormitory serving as evaluators, counselors, and disciplinarians. The Brigade is divided into two regiments, each of which is further divided into three battalions. The six battalions each have six companies with midshipmen of all four classes assigned to each company.

First-classmen nominated by the Brigade Officers and approved by the Commandant or Superintendent fill the command and staff positions within the Brigade. These student officers help administer the fourth-class system, aptitude and conduct evaluations, the Honor Concept, and the intramural program. They also fill leadership positions in several of the summer training programs.

The fourth-class system begins upon each new class' arrival at the Academy in July with an 8-week indoctrination designed as a transition from civilian to Academy life. This intensive training period includes instruction in drill and ceremonies, seamanship, navigation, small-arms training, and physical education. Stringent restrictions are imposed on fourth-classmen during the summer but are relaxed somewhat when the academic year begins.

Throughout the academic year, fourth-classmen are required to know and recite specified information when asked by an upperclassman. They must also perform certain functions within their company, such as maintaining the bulletin board and announcing the amount of time until meal formations. A special professional program is conducted by the Brigade chain of command. Fourth-classmen receive weekly lectures and are later tested on such topics as leadership and naval history. The results of this program are considered in determining the outstanding midshipmen company.

The Brigade Honor Committee, composed of a member of each class from all 36 midshipmen companies, is charged with maintaining the vitality of the Honor Concept, hearing cases of reported violators, and recommending to the Commandant that he retain or dismiss convicted violators.

Unlike the Military and Air Force Academies, the Naval Academy's Honor Concept does not embrace toleration as an offense. Lying, cheating, and stealing are the offenses

encompassed by the Concept. Midshipmen observing a possible breach may either report it or counsel the offender.

A Brigade honor board hears evidence and then votes on guilt or innocence based on a mere preponderance (over 50 percent) of the evidence. Five of the seven members must vote guilty for conviction. During the 1974-75 academic year, 23 midshipmen were separated for honor offenses.

The Academy asserts that the Honor Concept is the primary responsibility of the midshipmen. The Commandant, the Superintendent, and the Secretary of the Navy review all recommendations for retention in which the Honor Committee finds that an offense has been committed but extenuating circumstances are a valid partial excuse. They also review all recommendations for separation. If they disagree with the Honor Committee's decision, they either override the decision or remand the case for further consideration. In at least four cases during the 1974-75 academic year, the Honor Committee's recommendation for separation was overridden.

Midshipman life is also controlled by comprehensive regulations known as the Administrative Conduct System. Violations may be reported by midshipmen or other Academy personnel for infractions ranging from failure to carry out routine duty or creating a disturbance during study hour to paternity or unauthorized possession of alcoholic beverages. Disciplinary action includes the award of demerits and, at times, restriction to the Academy, extra duty, loss of leave, and dismissal, depending on the severity of the offense. Midshipmen are allowed a decreasing number of demerits annually as they progress through the Academy program. They receive conduct grades each semester based on their total demerits.

Brigade officers grade each midshipman in their company every semester on aptitude for commissioned service. These grades are partly based on evaluations submitted by senior midshipmen, instructors, and coaches. The qualities measured by these evaluations include attitude toward the naval service, performance of duty, leadership, bearing and dress, and capacity to handle jobs.

The conduct and aptitude grades become increasingly important in determining rank-in-class during the 4-year program. Although together they comprise only 6 percent of fourth-class standing, they comprise 33 percent of first-class standing. During the 1974-75 academic year, 21 midshipmen were separated solely for conduct deficiencies and 2 for lack of aptitude.

PHYSICAL DEVELOPMENT

The Director of Athletics is responsible to the Commandant for physical education and intramural sports and to the Superintendent for intercollegiate athletics. The objectives of these programs are preparing midshipmen to endure physical hardships and to train others and instilling physical fitness habits. Midshipmen average about 9 hours per week of physical development activity during the academic year.

Physical education

The physical education curriculum during the academic year includes water survival, strength development and evaluation, personal defense, and recreational activities. Included in the above subjects are classes in officiating and athletic administration. The physical education grade is based on the midshipman's performance in all of the above areas. Unlike the other academies, the Naval Academy awards no credit for physical education classes. Performance in physical education, however, is a factor in determining each midshipman's rank-in-class.

Specific swimming tests must be completed during the 4-year program. These become progressively more difficult, ranging from swimming underwater for 30 feet for fourth-classmen to swimming half a mile in 40 minutes for first-classmen. Objective measures determine the grades received on some of these tests; the others are based on subjective evaluation.

Physical development is also monitored throughout the 4-year program by requiring all midshipmen to run an obstacle course and a mile for time and complete a three-event applied-strength test each semester. Specific performance levels are established. The minimum levels of performance are not based on Navy-directed requirements, but rather on the previous performance of Academy midshipmen. The standards become progressively more difficult for the applied-strength test but remain constant for the mile run and obstacle course.

Those failing to meet the standards are assigned to additional corrective classes. Those failing after receiving extra instruction are subject to loss of privileges and eventually dismissal, like individuals deficient in academic courses. Academy officials stated that the minimums are set so that, with the extra instruction, all midshipmen who pass the physical aptitude test for admissions should be able to meet the minimum standards.

Competitive athletics

Intramural competition is conducted in 23 activities at both the company and battalion level. The academic year is divided into three seasons and all midshipmen must participate except intercollegiate athletes; participants in certain extracurricular activities, such as the drum and bugle corps; and those receiving remedial instruction for physical deficiencies.

The purpose of the intramural program is to relieve the pressures of academics, enhance physical conditioning, and provide leadership opportunities. Midshipmen fill all intramural coaching and officiating positions and manage the programs, guided by physical education instructors.

Physical education faculty

The physical education faculty is approximately two-thirds civilians and one-third military personnel. None of the 37-member faculty have doctoral degrees, and approximately 60 percent have no advanced degrees. The current requirements for civilian physical education faculty are such that collegiate teaching or coaching experience may be substituted for advanced academic degrees through the associate professor level. Ten of the military faculty are Naval Academy graduates without advanced degrees and with baccalaureate degrees in an area other than physical education.

EVALUATIONS OF PROGRAMS AND GRADUATES

Naval Academy programs are reviewed by several internal and external bodies. Some of these groups, such as the Board of Visitors, periodically receive rather general briefings on all programs. Others, such as the Middle States Association and the Engineers' Counsel for Professional Development, review the sufficiency of the academic program or majors. There is no formal review procedure in which an independent body comprehensively evaluates all programs as to their sufficiency to meet Navy needs.

Academy reviews

The professional development board has specified competency levels for all midshipmen in a wide range of tasks. Some of these require the midshipmen to be acquainted with certain material, such as officer career patterns. In other areas, the midshipmen must possess a greater degree of proficiency, such as being able to maneuver a ship. Specific courses and activities to impart the specified level of competence are also identified.

At the time of our review, competency objectives were designed to insure that every graduate was immediately assignable aboard a destroyer in any one of five positions such as "assistant navigator" or "gunnery assistant." The Academy is currently revising these objectives to reflect the recent and anticipated future assignment patterns for its graduates. Only about 30 percent of recent classes have been initially assigned to surface vessels, and the Navy has established a Surface Warfare Officer School to provide the technical instruction necessary for these increasingly complex surface ships. The proposed competency objectives recognize that almost all graduates will receive specific technical training immediately after graduation and therefore do not require as much shipboard proficiency. Instead, the graduate is to be well versed in the fundamentals of naval science and naval warfare.

In 1974 all first-classmen were tested on an Academy-prepared Junior Officer Readiness Review to verify their professional competence level. The two-part, 4-hour examination was given in February, and no penalties or rewards were assessed based on performance. A similar examination had been given the previous year. The 904 students examined in 1974 averaged 67.5 percent on the test, which was below the suggested minimum acceptable score of 70 percent but above the predicted score (based on the lack of incentive) of 65 percent. These scores were also appreciably above those of 223 Naval Reserve Officer Training Corps students from 8 universities who averaged 48 percent on the same test.

Based on their experience with the two nonpenalty exams, the Academy developed a test for the class of 1975 with built-in incentives. All first-classmen, except those who had selected the surface warfare career specialty, were tested, and those who failed to achieve an acceptable score in any of the seven areas were scheduled for at least 6 weeks of remedial instruction in each area of deficiency. The remedial programs are conducted on Saturday mornings and are taken in lieu of free time. Of the 608 students taking the test, 306 were scheduled for remedial training in at least one area and many were scheduled for instruction in two or more areas. Because of this high failure rate, we suggest that the Academy review the adequacy of the midshipmen's professional training.

The 187 members of the class of 1975 who had selected the surface warfare specialty took a validation examination prepared by the Surface Warfare Officer School in lieu of the Junior Officer Readiness Review. Those who scored 80 percent on the examination were to be exempt from the 16-week school. Academy officials did not expect many to

achieve the required validation score, and in fact none did, but they did hope to have those who achieved 65 percent or better exempted after completing remedial work at the Academy. This position was adopted, and 46 graduates were exempted from attending the Surface Warfare School.

Academy officials are concerned that Surface Warfare School's curriculum extensively duplicates many aspects of the Academy program. They recognize the need to give graduates training not provided at the Academy and to reinforce the training provided but have recommended that an abbreviated surface warfare curriculum be provided at the School. The Navy has not taken a final position on this recommendation.

The Academy plans to have all first-classmen subjected to the Junior Officer Readiness Review during future years and will not offer a surface warfare validation examination. The Review will be given earlier in the academic year followed by a period of self-review for deficient students and a reexamination. A formal remedial program will be established for those who are deficient on the reexamination. Although some Academy officials have suggested making successful completion of the Review a requirement for graduation, this proposal has not been implemented.

According to Navy officials, they rely on the officer-effectiveness reporting system to determine that Academy graduates are meeting service needs. All naval officers are evaluated by their immediate supervisor at least annually. However, the Navy does not maintain consolidated records evaluating graduate performance to show its excellence or even its sufficiency. Since the reported information is not consolidated, it does not provide a means to identify program weaknesses.

The Navy also relies on initial assignments to insure that graduates meet service needs. Except for a limited number who are physically unqualified, the graduates are restricted in assignment area to a warfare specialty. Assignments for the class of 1974 by technical or nontechnical major were:

	Technical	Nontechnical	Total
Naval aviation	235	178	413
Surface warfare	102	96	198
Nuclear power	159	20	179
Marine Corps	34	50	84
Other	22	15	37
Total	552	359	911

As was noted earlier, both the nuclear power community and the Marine Corps fell short of their recruiting goals.

Beginning with the class of 1969, the Academy initiated a graduate performance and evaluation system to identify and correct weaknesses in midshipmen preparation by assessing graduate performance after commissioning. The system has been revised through the years but is currently based on the analysis of two separate questionnaires administered about 1 year after graduation. One is sent to the commanding officer of graduates assigned to surface ships and the other is sent directly to all graduates.

The commanding officer rates the graduate's performance in five types of professional skills. He then evaluates personal characteristics and compares the graduate with officers from other commissioning sources. The graduate questionnaire addresses the same professional skills. It also elicits the graduate's perception of how specific courses and subjects prepared him for his current duty and the relevancy of Academy disciplinary standards.

External reviews

The Naval Academy is accredited by the Middle States Association of Colleges and Secondary Schools. The most recent visit by the Association's evaluation team was in March 1966. The team analyzed and commented on various aspects of the Academy's programs. Recommendations were made in the areas of review organizations, faculty, facilities, and attrition.

The Engineers' Council for Professional Development accredited four engineering majors during the 1971-72 academic year and three additional engineering majors during the 1972-73 academic year.

The Board of Visitors to the Naval Academy meets periodically to examine the Academy's programs and submit a report each year to the President of the United States. The Board is comprised of nine Members of Congress and six private citizens appointed by the President. In its 1974 report, the Board commented on the command and support structure, facilities, admission standards, and attrition.

CONCLUSIONS

The Academy's programs appear to be generally serving the needs of the Navy. Aside from not meeting its goals in the production of officers for the nuclear power community and the Marine Corps, it has, for the most part, been responsive to changes in the needs of the naval communities.

We believe, however, that the Navy needs to give special attention to upgrading the academic credentials of the Academy's faculty. During the 10 years since the Middle States Association of Colleges and Secondary Schools criticized the Academy in this area, the situation has not improved and no program has been established to correct the problem. In our opinion, the Navy should establish a program to insure that all members of the academic faculty possess at least a master's degree in an area related to the subject they are teaching. With a better qualified faculty, the Navy could expect graduates better qualified to meet Navy needs.

The Naval Academy has been most imaginative by taking the lead to develop formalized systems to evaluate its programs and graduates. These efforts should continue, and the systems should be refined and improved as the results are reviewed.

RECOMMENDATION

We recommend that the Secretary of Defense direct the Navy to establish a program to insure that all members of the academic faculty possess advanced degrees.

AGENCY COMMENTS

We discussed our findings with Department of the Navy officials, who agreed with our conclusions. They stated that actions will be taken to upgrade the academic credentials of military faculty members. They did not believe the Navy has the authority to require the two civilian faculty members who are not making efforts to obtain an advanced degree to do so.

Civil Service Commission officials advised us that agencies may require employees to upgrade their professional qualifications to meet new standards as long as sufficient time is provided to meet the requirement. We believe the Navy should require these individuals to participate in a program to obtain advanced degrees.

CHAPTER 5

MILITARY ACADEMY

TYPE OF GRADUATE

The various Military Academy programs have been developed and modified primarily on the basis of the Academy's perception of Army needs. Although formal external guidance and inputs have been very limited, the Academy does receive informal guidance and inputs regarding Army needs. Several Academy-initiated program reviews have attempted to define specific future Army officer requirements. They concluded that future needs can be defined only in generalized and subjective terms, and Academy programs should not be formed on conjectural assumptions of detailed and specialized future requirements.

The Academy's mission addresses the need to instruct and train cadets for Army careers. To accomplish its mission the Academy attempts to develop in each cadet

--a commitment to duty, honor, and country;

--a sound educational foundation;

--physical strength and stamina; and

--the basic military background essential to combat leadership.

The academic program is designed to produce a generalist capable of understanding the reasoning processes of the various disciplines. The Academy does not offer academic majors, but it allows cadets to concentrate their elective courses in four designated areas: basic sciences, applied science and engineering, national security and public affairs, and humanities. The Academy has not set quotas for these areas, but it has set upper limits on enrollment. No more than 35 percent of a class may concentrate in any one of the first three areas and no more than 10 percent in humanities. Approximately one-third of the cadets use their electives in an interdisciplinary manner and do not concentrate in one area.

The Academy's military instruction is not designed to produce a fully trained second lieutenant. Instruction and training are designed to provide a basic military background as a foundation for training after graduation in the technical expertise needed by the various Army branches.

The physical conditioning program prepares graduates to respond to the demands of a combat environment. The Academy adopted the mean score of the combat officers' standard of the Army Physical Fitness Evaluation Test as the minimum standard for all first-class cadets. Another aim of the program is to provide a competitive atmosphere through intramural and intercollegiate athletics. Graduates must be able to organize and conduct conditioning programs for their units. In addition, the program attempts to motivate graduates to maintain their personal conditioning, thereby setting an example for their subordinates.

The Academy also relies on its admissions procedures to contribute to producing the type of graduate it seeks. All applicants are required to meet the medical standards for combat officers.

According to Academy officials, they maintain their academic and physical aptitude admissions standards through traditional college admissions procedures. The Academy does not use minimum "cutoff" scores for academic and physical aptitude qualifications. Qualified applicants are selected to fill congressional vacancies primarily on the basis of academic test scores, high school rank in class, and physical aptitude test scores without special consideration of leadership or athletic strength or ethnic background. All applicants are initially assigned to one of three zones based on their academic and physical aptitude scores. Individuals with scores below certain levels are considered disqualified. This inference of disqualification may be overcome through a detailed evaluation of the applicant's file by Academy officials. Thus, some candidates with low initial scores are selected while others with higher scores are rejected. Special selection procedures are used for outstanding leaders, disadvantaged students, and gifted athletes. Of the 184 candidates with academic scores in the low zone admitted to the class of 1978, 126 were recognized athletes and 50 were members of ethnic minorities.

ACADEMIC PROGRAM

The goals of the academic program are to

--offer a broad collegiate education leading to a bachelor of science degree;

--build a foundation for future graduate study;

--stimulate intellectual curiosity and individual talents;

--develop powers of analysis, reasoning, and expression; and

--help build character.

The program consists of a minimum of 139 semester hours composed of both core courses and electives. (See app. I.)

Core curriculum

In keeping with its goal to provide a broad educational base, the Academy does not offer academic majors. A core curriculum is prescribed for all cadets, requiring them to successfully complete or validate 41 courses totaling 121-1/2 semester hours in mathematics, basic and applied sciences, engineering, social sciences, and the humanities. The Academy believes that these courses are sufficient to qualify graduates for assignment to any Army specialty school upon graduation and, with the additional electives, are adequate preparation for later entrance to most graduate schools.

Since 1960, cadets demonstrating sufficient knowledge in a core course have been permitted to validate the course and take an additional elective in its place. In the class of 1975, 191 cadets validated a total of 456 courses. The department of mathematics offers an accelerated program enabling qualified cadets to complete its 19-semester-hour standard sequence in as few as 12 semester hours. These cadets may then take additional electives.

Advanced sections of some core courses are also offered. These courses allow cadets with special aptitude in a subject, but who are unable to validate it, to pursue the area in more depth than the standard courses. These courses have been offered since 1959, when they were suggested by an internal curriculum study.

Electives

Elective courses have been offered since 1959. In that year 20 elective courses were offered and students could select 2 of them. Currently, students must take at least 6 electives (17-1/2 semester hours) from the 159 offered. Those cadets who validate core courses or complete the prescribed mathematic sequence early through acceleration are able to take additional electives.

The Academy has limited the number of cadets in each area of concentration to avoid wide fluctuations from class to class. The Academy has not instituted minimum goals in the concentration areas, even though only about 25 percent

of recent classes have chosen basic sciences or applied science and engineering, because it feels that the core curriculum provides the technical background desired in all of its graduates.

Instructional methods

The Academy's educational system is based upon the tenets of Colonel Sylvanus Thayer, who was Superintendent from 1817 to 1833. His four basic principles were

--emphasis on physics, science, and engineering;

--small class sizes;

--ability grouping; and

--competition among students.

Over the years these tenets have been modified, but they continue to influence academic practices, according to Academy officials.

In most academic departments, students are initally assigned to a particular class section according to ability. Some indicators of ability used by the Academy are a cadet's overall and academic class standing and prior grades in related courses. Periodically during a semester, students are resectioned, sometimes changing instructors, based on their performance in the subject. This practice allows cadets doing poorly to spend more time on the basics and those doing well to try more challenging work. Common major examinations are prescribed by course directors to insure that all students are tested on the same required material. The common exams limit the discretion of the individual instructors.

A cadet's academic performance is the main component of his overall class standing. Since branch selection for graduating first-classmen depends largely on class standing, academic performance is extremely important. Cadets ranking in the top 30 percent of the class academically are also named to the Dean's List and afforded extra privileges. Cadets failing to meet the minimum academic levels are deemed deficient. A department head may refer such a cadet to the Academic Board for dismissal. Academic deficiencies accounted for 27 dismissals from the class of 1974. Cadets whose academic shortcomings do not warrant dismissal may be turned back to a later graduating class or lose off-duty privileges.

Academic Board

The Academic Board establishes the Academy's admissions policy, course offerings, and instruction methods. The Board must approve dismissals and separations for academic and nonacademic reasons. Board members include the Superintendent; the Dean; the Commandant of Cadets; the 12 academic department heads; the Surgeon; and the Director of Admissions, who has no vote. Board action is by majority vote of those present with the presiding officer (usually the Superintendent) having the deciding vote in case of a tie. The Dean, the Director of Admissions, and the 12 department heads are tenured and appointed by the President. This gives the Board continuity, as the other members normally serve tours of 3 to 5 years.

Academic faculty

The authorized faculty strength is 551, of which 99 percent are commissioned officers. The faculty has eight civilians, most of whom are foreign-born linguists. Academy graduates comprise 71 percent of the total and 51 faculty members are tenured. The nontenured faculty are primarily junior officers serving 3-year assignments with a one-third annual turnover rate. Most of these junior officers arrive directly from graduate school with little or no academic teaching experience or education courses. To compensate for this inexperience, the Academy relies on close supervision by department heads and course directors, in-house instructor training programs, and the military-related instruction experience of many of these officers.

The nonpermanent faculty members are selected by academic department heads with the assistance of Army Headquarters. The Academy desires that they

--be commissioned officers with 5 to 14 years of service;

--be in the top 25 percent of their branch and grade;

--possess or be able to obtain an advanced degree in an appropriate field;

--have a variety of Army assignments; and

--possess the highest standards of military bearing, personal appearance, and physical conditioning.

These individuals are identified through files on graduates who have applied directly to the Academy, inputs from Army Headquarters about officers who have expressed interest,

and recommendations from other officers. Individuals initially identified as potential faculty members are screened by Army Headquarters to verify their suitability and availability. Those officers selected must be approved by the appropriate department head. They are then given further schooling, if necessary. Most nonpermanent faculty have a 3-year tour of duty and initially teach a core course at the academic rank of instructor.

An applicant for a vacancy on the permanent faculty should

--have completed one tour of duty teaching at the Academy,

--have approximately 15 years of active service, and

--have or be able to obtain a doctorate degree (for professor positions only).

A faculty committee screens all applicants and makes recommendations to the Academic Board, whose selection is forwarded to Army Headquarters for approval. Permanent professors must then be appointed by the President with Senate approval. With the exception of the Dean and the professor of physical education, professors serve as heads or deputy heads of academic departments, and all professors may remain at the Academy until age 64. Permanent associate professors may remain until they complete 30 years of service.

Although the faculty members are encouraged to further their academic development by writing articles and attending conferences, nonpermanent faculty members are discouraged from taking academic courses during the school year. The faculty conducted 110 research projects and published 60 articles during the 1973-74 academic year.

Almost one-half of the faculty members voluntarily serve as supervising officers for cadet extracurricular clubs and as officer-coaches on intercollegiate teams. Under a sponsor program, about 250 faculty members host third-class cadets to permit a more informal officer-cadet relationship.

MILITARY TRAINING

Although military training is provided by several different organizations within the Academy, the Commandant of Cadets is the focal point. Subordinate to him are the officers who oversee the Corps of Cadets, the Office of Military Instruction, the Office of Military Leadership, the Office of Physical Education, and the Corps itself. Some courses taught by the academic departments have a particular military orienta-

tion, such as the history of military art. Other courses that are predominantly academic, such as general psychology and sociology, are offered by the Office of Military Leadership.

Academic year

Formal instruction during the academic year mainly provides the theory of military knowledge and skills. These courses, conducted by the Office of Military Instruction, are limited to an average of 2 hours per week and total 7 semester hours over the 4 years. Additional time is allowed for drills and ceremonies. The classroom courses include such topics as small unit tactics, map reading, service orientation, and command function. During their first-class year, cadets take an ungraded course on career selection.

Summer programs

Training is the primary focus of the summer months. New cadets spend 7 weeks in an intensive training program known as new cadet barracks. The principal aims of the program are to provide a rapid transition from civilian to military life and to impart the fundamentals of cadet life. The program is conducted in a tightly controlled and structured atmosphere placing severe stress upon the new cadets. Historically this period has accounted for a high proportion of all cadet separations. The class admitted in July 1974 lost 8.6 percent of its members during this period.

Third-classmen receive orientation training on the functions of several Army branches (infantry, combat engineers, field artillery, air defense, and armor). Most of the 8 weeks of training is spent encamped on the Academy reservation, but 1 week is spent at Fort Knox, Kentucky, with armor and air defense units. The program's culminating segment is an 11-day patrolling and survival exercise.

During their second-class summer, most cadets participate in Army orientation training, serving 4 weeks as platoon leaders with active Army units in Panama, Europe, and the United States. Cadets also may select from various adventure training options conducted away from the Academy. During the 1974 summer, cadets chose the following options:

	Weeks of training	Number of cadets
Airborne	3	500
Jungle warfare	2	30
Ranger	9	36
Northern warfare	3	107
Arctic warfare	2	38
Helicopter flight	8	52
Race relations	5	12

Most of these courses are standard Army programs leading to a recognized specialty, while others are for orientation. The helicopter flight training offered to second-classmen as an adventure training option is meant to be an orientation to helicopter flight and is not designed to qualify individuals as Army helicopter pilots. We suggest that the Academy consider reducing the 40 hours of flight time currently part of the course. The cost of operating the type of helicopter used in the training is $92 a flight-hour. We noted that the Coast Guard Academy program requires only 10 hours of flight time for orientation purposes.

First-class summer training is geared to provide practical leadership experience primarily by assigning cadets to the training cadres supervising new cadet barracks and third-class training. Those cadets who did not attend Army orientation training the previous year must complete it during their last summer.

Cadets are directly supervised by Academy personnel during most of these summer training periods. During the Army orientation training, cadets are evaluated by their host unit using a written efficiency report like that used to rate officers. Cadets are counseled on their rating when they return to the Academy. Since most of the adventure training options are regular Army training programs, successful completion is readily ascertainable. Cadets' performance is reported to the Academy, and in those courses offering recognized skills, completion is noted in the cadets' permanent records.

The Corps of Cadets

The approximately 4,000 members of the Corps of Cadets are organized into a brigade of four regiments. Each regiment is further divided into battalions and companies. The 36 cadet companies are composed of cadets from all four classes. Cadet officers from the first class fill command and staff positions throughout the brigade. Command positions, except for brigade and regiment, are rotated triannually so that most first-classmen have at least one leadership opportunity.

The Corps of Cadets plays a major role in administering

--the disciplinary system,

--the honor code,

--the fourth-class system,

--the intramural athletics program, and

--extracurricular activities.

The disciplinary system is established by Academy regulations and covers 144 specific infractions and delinquencies for which demerits and other disciplinary punishments are awarded. These offenses range from minor infractions, such as improper haircut, to more serious violations, such as the possession of alcoholic beverages. Violations may be reported by cadets or officers.

Four classes of delinquencies are established, based on the severity of the punishment and the level of the punishing authority. Minor offenses are within the province of the cadet's company tactical officer, while more serious offenses and punishments may require the Commandant of Cadets' approval. In addition to demerits, punishment may include confinement to quarters, extra marching with rifle, restriction to certain areas of the Academy grounds, and loss of leave and class privileges.

Cadets are allowed a specific number of demerits per month and per semester based on their class. Those exceeding the maximum are awarded additional punishments and considered unsatisfactory or deficient in conduct. Cadets below the expected level of compliance are reviewed by their superior officers to determine their suitability to continue at the Academy. In 1974 only one cadet was actually separated because of conduct deficiencies and none were removed in 1973.

A cadet's military leadership potential and performance is measured by the Leadership Evaluation System. Each cadet's score is determined by a quarterly rating by his peers, the cadet chain of command, and his tactical officer. The individual's score, the principal factor in selection for leadership positions, constitutes a portion of his class standing.

The evaluation process also identifies cadets unsuited for a military career and provides an orderly procedure for their separation. Tactical officers make semiannual reviews of cadets rated near the bottom of their classes. Their recommendations are forwarded to the Commandant of Cadets.

Those cadets recommended for dismissal are further evaluated by the Academic Board. During fiscal year 1974, eight cadets were separated by this process. The Leadership Evaluation System was changed in 1973 following a court determination that the system did not afford cadets due process. According to Academy officials, the separation process is now very elaborate. They assert that the system is designed not to weed out underachievers, but to help them perform adequately.

The Cadet Honor Code requires that "a cadet will not lie, cheat, or steal, nor tolerate those who do," and allows for no deviations. The Cadet Honor Committee consists of one first-classman and one second-classman, who serves as an apprentice, from each company.

Most honor investigations are initiated by cadets, although officers may also start the process. If the preliminary investigation supports the initial report of a violation, a 12-member honor board is convened to hear the case. At the hearing, the accused and witnesses are permitted to testify. Unless all 12 voting board members vote the accused guilty, he is returned to the Corps in good standing.

The Commandant reviews all convictions. Cadets may either resign or appeal to a Board of Officers who review the facts anew. The Board may overrule the findings of the Honor Committee, in which case the cadet remains in the Corps. If the Board recommends dismissal, the case is forwarded to the Superintendent and to the Department of the Army for their concurrence.

The Superintendent's Honor Review Committee, composed of senior staff and faculty officers, reviews the program annually. Its 1974 report included the following observations.

--The toleration clause is one of the biggest problems for cadets.

--Some cadets believe separation (the only punishment for an offender) is too harsh for minor offenses, so some are not reported.

--Some cadets feel that friendship is more important than reporting a fellow cadet.

--Generally, toleration increases as a cadet progresses through his 4 years.

--Cadets are critical of the honor system, claiming it is used to enforce regulations.

For the year ending in April 1974, 82 cases were heard by honor boards and 43 cadets were found guilty. Another six resigned in lieu of having their cases heard. Fourteen of those convicted chose to appeal to a board of officers. Of these, nine were separated and five were reinstated, notwithstanding the honor board's unanimous determination of guilt.

PHYSICAL DEVELOPMENT

The physical development program is the joint responsibility of the Director, Office of Physical Education, under the Commandant of Cadets and the Director, Office of Intercollegiate Athletics, who reports directly to the Superintendent.

The Office of Physical Education provides a four-part program of instructional courses, intramural athletics, specialized instruction, and physical ability monitoring. Fourth-classmen take swimming, boxing, gymnastics, wrestling, and golf or tennis. After completing these courses and a personal conditioning course during the third-class year, cadets are free to choose 5 courses from among 18 carry-over activities, such as handball, basketball, unarmed combat, and strength development.

Cadets also receive instructional training during the summer periods. During new cadet barracks, cadets take 53 hours of physical ability testing, conditioning, and mass athletics. During the second summer about 27 hours of military physical training is provided. Various amounts of physical conditioning are provided during the cadets' last two summers, depending on the particular training options chosen.

Intramurals are organized along the military structure of the Corps of Cadets; each company fields teams in 12 sports. The cadet brigade commander and subordinate cadets are responsible for the day-to-day operation of the intramural program, acting as administrators, officials, and coaches.

Intramural competition is divided into fall, winter, and spring seasons. All cadets except those on an intercollegiate or club team are required to participate during the fall and winter seasons. Although spring season intramurals are voluntary, about 50 percent of the cadets regularly participate. Teams practice or compete twice each week. Cadets are not permitted to participate in the same sport for more than 2 years. Cadets with intercollegiate or some other particular experience or ability in a certain sport are banned from competing in that sport intramurally.

Specialized instruction is a remedial measure for those cadets with particular conditioning or weight problems. Reconditioning is available for cadets who are convalescing from an injury or illness, and a specialized swimming course is provided for cadets unable to pass a required survival swimming test.

The physical ability of cadets is monitored throughout their 4 years at the Academy. All applicants are initially screened in a four-event physical aptitude examination. Performance on this test is 10 percent of a score used during the admissions process, but there are no required levels of performance.

Cadets are subjected to seven distinct fitness-monitoring evaluations which include both standard Army and some Academy-developed tests. During the fourth-class year, cadets take two tests and must negotiate an obstacle course. Minimum performance levels are established and each cadet is assigned a score. This score constitutes 40 percent of the cadet's grade for 3 semester hours of physical education. Third-classmen repeat the same tests and the obstacle course and also take the Army Physical Fitness Evaluation Test and the Airborne Physical Fitness Test. Second-classmen take an Academy-developed test and the Army test and are timed on a 2-mile run. First-classmen are twice monitored using the Army test.

The Academy has revised upward the Army's minimum standard on the Army test which consists of the inverted crawl; run, dodge, and jump; horizontal ladder; bent leg situp; and two-mile run. Cadets must score at least 60 points on each event to qualify for graduation and some cadets have had to retake the examination to achieve a satisfactory score.

The cadet's performance on the monitoring test is considered in his physical education grade in increasing amounts throughout the 4 years. Currently, first classmen are awarded 1.5 semester hours based entirely on the Army Physical Fitness Evaluation Tests with no regard for their performance in the instructional program. This is being changed so that performance in the instructional program will count for 20 percent of the first-class grade. Cadets deficient in physical education are subject to loss of privileges and dismissal as are cadets deficient in academic and military training. The Academic Board approved eight dismissals for physical aptitude deficiencies during the 1973-74 academic year.

Physical education faculty

The physical education faculty consists of 24 officers, 11 enlisted men, and 11 civilians selected by the Director, Office of Physical Education, with the concurrence of Army Headquarters. Officers and civilians selected for teaching positions must have or obtain an advanced degree in physical education. Some enlisted positions are filled by individuals recruited by the Academy to enlist in the Army under a "Stripes for Skills" program. These individuals, some of whom did not have advanced degrees, were guaranteed that they would be assigned to the Academy as instructors. We suggested that these positions be filled by qualified civilians, and Academy officials are taking the necessary actions to convert them.

EVALUATIONS OF PROGRAMS AND GRADUATES

According to Academy officials, they insure that their programs produce graduates who meet Army needs by evaluating their current programs, rather than examining graduate performance. The Academy has occiasionally queried groups of graduates on their perceptions of certain aspects of Academy preparation. However, no regularly recurring process is employed which lets the Academy know, either from the graduate or his immediate supervisors, how well graduates have been prepared for their assignments. In addition, no comprehensive examination is given cadets before graduation to measure how well they retain the knowledge they need as new second lieutenants.

Academy officials told us that, although the Department of the Army does not regularly inform the Academy of the overall quality of its graduates, some feedback is provided, on a relatively constant, informal basis, that deals with numerous desired attributes.

The most recent comprehensive review of the Academy's programs resulted in a December 1972 report entitled "A Study of the Programs of the United States Military Academy" issued by a four-member review board composed of distinguished educators and a retired officer. The report included suggestions which have so far resulted in reduced lessons for the fourth-class mathematics course and a 10-percent reduction in the lessons of all required core courses.

External reviews

The Academy is accredited by the Middle States Association of Colleges and Secondary Schools, which last reported on the Academy in 1969. Academy officials responded to

several recommendations contained in this report by establishing a separate department of history and transferring academic courses in psychology and sociology from the Commandant of Cadets' to the Dean's control. The report also recommended further opportunities for academic specialization but cautioned against establishing a majors program.

A Board of Visitors is charged with inquiring into morale, discipline, curriculum, instruction, physical equipment, fiscal affairs, academic methods, and any other matters it wishes to consider. The Board is comprised of nine Members of Congress and six persons designated by the President and annually reports to the President. The Board concluded in its 1974 report that the Academy was effectively discharging its mission.

CONCLUSIONS

The Academy's programs are designed, in our opinion, to produce the qualified officers the Army needs. Its graduates are equipped with a sound general academic background on which to build their specialties as career officers. We believe, however, that systematic programs to evaluate cadets before and after graduation are needed. The Naval Academy has established such evaluation programs, described on pages 41 to 43.

The Academy relies primarily on the individual course grades over the 4-year period to insure that each cadet has the professional knowledge required of a new second lieutenant. We noted that many aspects of the Academy's programs are ungraded, even when involving essential knowledge or skills. The adoption of a comprehensive professional examination would insure that all cadets had been properly prepared for their future assignments.

To aid the continuing development of its programs, we believe the Academy should establish a systematic method of assessing graduate performance. We believe that monitoring graduate performance, from the viewpoints of both the graduate and his immediate supervisors, would enhance the existing formal and informal feedback systems. It would give the Academy better information on whether or not its programs are producing the type of graduates needed by the Army. We believe this would best be accomplished through regular rather than ad hoc assessments.

RECOMMENDATIONS

We recommend that the Secretary of Defense direct the Army to:

--Establish a comprehensive examination for first-classmen to verify their level of professional competence.

--Establish a systematic program to assess graduate performance.

AGENCY COMMENTS

Army officials generally agreed with our conclusions and said that they would conduct a detailed study to determine whether to implement our recommendation for a comprehensive examination. They agreed with our recommendation for establishing a systematic graduate assessment program and were considering extending it to cover graduates of other commissioning sources.

CHAPTER 6

COAST GUARD ACADEMY

TYPE OF GRADUATE

The Commandant of the Coast Guard, in a June 1974 letter to the Academy Superintendent, stated that the primary emphasis of the Academy's education and training programs should be to produce dedicated general-duty Coast Guard officers. This letter also explained that the Coast Guard needs officers with technical backgrounds (engineering and scientific) and that officer career specialties are determined by duty assignments, postgraduate schooling, and advanced training, not by the Academy's undergraduate education.

Officials at Coast Guard Headquarters said that, besides dedication to service, the primary requirement for Academy graduates is a sound undergraduate education. According to these officials, the Coast Guard needs the majority of its Academy graduates to have technical backgrounds because (1) most of the Coast Guard's postgraduate programs are in technical areas and (2) these graduates have greater assignment flexibility because they can be assigned to technical or nontechnical positions.

The Coast Guard relies on the Academy as the primary source to meet its long-term officer requirements. The Officer Candidate School is used to fill short-term needs. Coast Guard officials stated they have not been able to attract candidates with technical backgrounds into the Officer Candidate School, and less than 20 percent of recent classes had the desired background. As a result, the burden of meeting the requirement for technically oriented officers has fallen on the Academy.

To be responsive to the needs of the service and provide enough qualified young officers for the various postgraduate education programs, the Academy emphasizes technical subjects and set a goal in 1973 of graduating 80 percent of its cadets with technical majors. This goal was based on a Coast Guard analysis of the service's long-range outlook and objectives, a Coast Guard study to determine officer needs for 1972-82, and the perceptions of Academy officers.

Academy officials emphasized that producing 80 percent technical majors is a goal, not a quota, and that cadets are not pressured to select a technical major. Of the last two classes selecting academic majors, only 69 percent chose technical majors. This is an improvement over the class of

1974 (50 percent) but little better than the classes of 1975 (64 percent) and 1976 (68 percent).

The Academy's objective to produce dedicated Coast Guard officers cannot be met solely through its academic programs. Military training programs and physical education are an integral part of the Academy's preparation of cadets to be commissioned officers. The military training programs are intended to develop in each cadet qualities of leadership and character that the Academy believes necessary to a Coast Guard officer. The Academy identified these qualities based on management theories and various leadership studies.

The physical development program is intended to develop a cadet's basic physical skills, agility, strength, and endurance. In addition, every effort is made to provide opportunities to generate and strengthen moral and physical courage, resourcefulness, group loyalty, fairplay, and leadership ability. The requirements of the physical education programs were developed by the Academy physical education faculty.

Coast Guard Academy admissions are unique among the academies. There are no congressional appointments or geographic quotas. Candidates apply directly to the Academy and are initially qualified on the bases of their high school rank-in-class and scholastic aptitude test performance. Candidates meeting these initial requirements are then scored on their "overall potential" by Academy officials. This score constitutes 40 percent of the candidates' total composite score. Appointments are offered to the candidates having the highest composite score. Since the subjective evaluation of "overall potential" by Academy officials constitutes 40 percent of the composite score, the Academy has broad latitude in its admissions process.

ACADEMIC PROGRAM

Until 1965 the Academy required all cadets, regardless of previous background or interest, to complete essentially the same course of instruction. The course composition of this curriculum was engineering and applied science (29 percent), mathematics and basic sciences (26 percent), professional studies (22 percent), humanities (18 percent), and physical education (5 percent). The curriculum was expanded in 1965 to offer elective courses and a management/social science program. Another program, ocean science, was introduced in 1968 to meet an emerging Coast Guard mission in oceanography. In 1971 the Academy adopted a program offering 13 options (areas of concentration). Beginning in 1974 the

curriculum was changed to offer nine differentiated academic majors for the first time. The total academic curriculum ranges from 132.5 semester hours for humanities majors to 146.5 semester hours for civil engineering majors.

Majors program

The nine majors are civil, electrical, marine, and ocean engineering; marine, physical, and mathematical science; management; and government. According to Academy officials, a prime reason for expanding the curriculum was to keep pace with the other service academies which were then also expanding their curriculums. Since many Coast Guard Academy applicants were also seeking admission to the other academies, officials felt that expansion was necessary to successfully compete for these applicants. They expected to attract a broader spectrum of applicants and perhaps reduce attrition. With the exception of the new mission in oceanography and the general desire to attract and retain qualified candidates, no direct relationship existed between the curriculum expansion and the needs of the service.

Although seven of the nine academic majors are in technical areas, the Academy has been unable to meet its goal of having 80 percent of its students take technical majors. About 73 percent of the class of 1978, the most recent cadets to select academic majors, indicated an initial preference for technical majors. A disproportionate number chose marine science, and the Academy forced over half of them to take their second choice. A third of these chose nontechnical majors, reducing the technical majors to 69 percent.

Core curriculum

Most cadets complete a 27-course sequence totaling 93.5 semester hours. This core curriculum includes six courses (22 semester hours) in specialized professional subjects. Cadets in some engineering majors substitute advanced courses for introductory core courses, and those with a sufficient grasp of a course may validate it. A further limitation on the commonality of the core curriculum is that cadets in the civil engineering major do not normally take either Introduction to Management or a social-humanistic option. According to Academy officials, Introduction to Management was removed from the civil engineering major to make room for additional engineering courses needed to obtain Engineers' Council on Professional Development accreditation. The program has still not been accredited.

Academy officials stated that the substance of the management course was taught in three civil engineering design

courses. The course descriptions of the three civil engineering design courses do not appear to embrace classical management principles; behavioral theory; or individual, group, and organizational leadership, which are included in the management course. Additionally, the management course is listed as a prerequisite for the third design course. Since the Academy's goal is to produce a general-duty officer, it would seem that basic management theories and techniques should also be taught to civil engineering majors.

Library

The Academy library is staffed by three professional librarians, two clerical assistants, and one enlisted man. American Library Association standards suggest a need for a minimum of 15 library personnel to serve 1200 students. The three librarians work during the day, and a fourth-classman mans the library during the evening hours when most of the 1,000 cadets do their studying. The New England Association of Schools and Colleges, which accredits the Academy, criticized the library staffing in both its 1964 and 1974 evaluations. Recent Board of Visitors reports have also recommended increased staffing.

Academic faculty

The 106-member academic faculty is approximately one-fourth civilian and three-fourths military personnel. Fifteen of the military faculty members are assigned to the Academy on a permanent basis; the other 65 are serving on 4-year tours. Approximately two-thirds of the civilian faculty are tenured. Most faculty members have at least a master's degree and approximately 30 percent have a doctoral degree.

A major exception to this is the department of nautical science and law. The nautical science branch of this department teaches professional courses only. Because of the nautical science course content, the Academy considers operational experience an adequate substitute for academic degrees. Three nautical science instructors have no academic degrees and 10 have only baccalaureate degrees.

Civilian faculty are hired by the Superintendent upon the Academic Council's recommendation. Permanent military faculty are selected by Coast Guard Headquarters. Vacancies for permanent military faculty are announced throughout and sometimes outside the Coast Guard. Individuals chosen from outside the Coast Guard are given direct commissions at an appropriate rank before reporting to the Academy.

Anticipated openings among the rotating military faculty in the management and economics, physical and ocean sciences, humanities, and mathematics departments are advertised, along with other positions in the Coast Guard likely to require the selectee to be sent to graduate school. Eligible officers apply directly to Coast Guard Headquarters, which in turn consults with the Dean and department head concerning their preference. A selection board consisting of Academy and headquarters personnel then makes the final selection. According to Academy officials, no written criteria are used to evaluate applicants.

Law faculty are assigned by the Coast Guard's General Counsel and all have law degrees. Nautical science faculty vacancies are publicized throughout the Coast Guard, but Academy graduates receive preference. To be eligible, an officer must have at least 4 years of commissioned service and not be expected to be considered for promotion to lieutenant commander during his 4-year tour. Officers selected for postgraduate school or a service specialty school are not eligible.

Military faculty in the applied science and engineering department are considered to be serving in their career specialty while at the Academy. Their assignments, therefore, are handled by the engineering assignments officer at Coast Guard Headquarters. The department head stated that he often requests officers by name and the assignments officer usually complies. Such officers are usually required to have both an advanced academic degree and professional experience in engineering.

Other than established procedures for selecting officers for the positions requiring postgraduate education, neither the Academy nor Coast Guard Headquarters maintains formal standards or selection procedures for the rotating military faculty. However, they do maintain an "academy matrix" on all graduates. The matrix, completed by Academy officials on each cadet, rates his suitability for future assignment of various faculty and Commandant of Cadets positions at the Academy. Cadets are rated as either "highly recommended," "recommended," "no opinion," or "not recommended." A copy of this matrix is forwarded to the officer assignment section at Coast Guard Headquarters. Any cadet identified as "not recommended" for a particular assignment will probably be precluded from selection regardless of his subsequent performance as an officer.

MILITARY TRAINING

The Academy bases its military training on 22 objectives. All the traits contained in them are subjective, such as "self discipline" and "recognizes need for continued intellectual and professional growth." Although these are commendable traits, they are not amenable to objective measurement and do not attempt to encompass the specific skills and knowledge required of a junior Coast Guard officer. According to Academy officials, they were in the process of developing professional competency objectives based on the tasks which a junior officer is expected to perform.

Brigade system

Cadets are organized into a Brigade of two regiments. Each regiment is further divided into three battalions with subordinate companies and platoons in each. First-class cadets fill officer positions within the Brigade, assisted by the second class. Five separate chains of command within the Brigade are formed annually, thus allowing cadets to function in various command and staff positions.

The Brigade fills important roles in administering the aptitude system, summer training, and the fourth-class system. The Academy's honor concept, however, is administered primarily by the Commandant's staff.

Three times each year, cadets evaluate their peers and subordinates within each cadet battalion on their aptitude for service. First-class cadets are also rated and then counseled by their battalion officer. He may refer questionable cases to a board of officers for further review and possibly dismissal. During the 1974-75 academic year, three cadets were dismissed for aptitude deficiencies. The Academy relies on the aptitude system as its primary measure of each cadet's potential. The system as it currently operates, however, is not related to the objectives that are the basis of the Academy's military training. We suggested that the Academy revise its rating procedures and reporting forms, using the training objectives as criteria for evaluating aptitude. Academy officials agreed and plan to revise the aptitude system accordingly.

The Academy's honor concept is "We are men of honor. We neither lie, cheat, steal, nor attempt to deceive." Academy officials believe that any cadet's conduct which demeans or offends this concept offends the entire Brigade. Unlike the other Academies, possible offenses are referred directly to the Commandant of Cadets upon detection. He then refers the matter to a cadet standards board, which

investigates the alleged offense. Extenuating circumstances may be considered. The standards board then reports its findings and a recommended disposition of the case to the Commandant. Reported offenses which, in the opinion of the Commandant, display a basic character flaw will normally result in a dismissal recommendation. Those cadets recommended for dismissal are afforded a hearing before the academy executive board, consisting of senior officers. Lesser offenses may result in disciplinary action short of dismissal. During the 1973-74 academic year, five cadets were separated for honor offenses.

The fourth-class system at the Academy is intended to fill a dual function. For the fourth-classmen, it is supposed to break the ties with civilian life and engender self-dicipline, a sense of responsibility for others, and motivation for the Coast Guard. For upperclass cadets, it provides an opportunity for practical leadership.

The fourth-class system begins with an 11-week indoctrination period. During this period, fourth-classmen are under the almost constant scrutiny of second-class cadets and commissioned officers. In addition to seamanship, drills and ceremony, and physical conditioning, cadets receive an orientation cruise aboard the Eagle, a sail-powered barque. During the academic year, fourth-classmen are still subject to many restrictions, but military training and orientation are limited to minimize interference with academics. Restrictions are gradually reduced throughout the academic year.

Academic-year training programs

The Commandant conducts training programs on Saturday mornings throughout the academic year. The topics include drug abuse, medical self-help, leadership, shipboard matters, minority relations, and military drills. Although attendance at this training is mandatory, approximately 20 percent of the Brigade is excused on any given day for athletic team trips, official duty, or weekend passes. There are no makeup sessions, and cadets are not evaluated on areas covered in this training.

A 1973 external review of Academy programs commented on the lack of cadet commitment to Saturday morning training. The report was particularly critical of the Saturday morning leadership course for third-classmen, noting the probable devaluation of any instruction during that period. Since this is the only formal military leadership training offered by the Academy, the report recommended teaching the course during the academic week. The Academy disagreed. In view

of the findings in this area by the new Coast Guard evaluation group (see p. 71), we suggest the Academy further consider implementing this recommendation.

Summer programs

During all four summers, cadets are involved primarily in professional training. As mentioned above, fourth-classmen receive basic orientation at the Academy and aboard the Eagle. Third-class cadets receive further training aboard the Eagle and operational Coast Guard cutters. The cadets stand watches and perform some of the duties of enlisted personnel.

Second-class cadets serve as the training cadre for incoming fourth-classmen. They also receive an introduction to Coast Guard aviation and training at other shore installations representative of Coast Guard operations. First-classmen act as junior officers in training. Half the summer is spent aboard ship, where they are trained in officer duties and exposed to the environment they serve in immediately after graduation. The remainder of the summer program is spent at a Coast Guard installation to help cadets select areas for postgraduate training.

Cadets do not receive academic credit for their summer training. They are evaluated by supervising officers and cadets. For some programs, levels of performance are specified for satisfactory grades. A cadet's performance in summer programs is a component of his suitability-for-service grade.

A recent consulting firm review of summer training included sending questionnaires to recent graduates. The graduates generally stated that the programs did not constitute realistic training to prepare them for initial junior officer duties. They also felt less technically competent than officers from other commissioning sources. The report recommended, among other things, that cadets receive more specialized training during their first-class summer to overcome this perceived competence gap. The Academy disagreed with this recommendation primarily because first-class cadets receiving technical training would receive no leadership experience supervising subordinate cadets during the cruise.

PHYSICAL DEVELOPMENT

The Academy's physical development program includes physical education classes and competitive athletics. In addition to developing physical fitness, the programs are used to develop leadership, confidence, and a competitive nature.

Physical education

Cadets are scheduled for 3 hours of physical education classes per week during their first 3 years and 1 hour per week during their first-class year. Cadets receive 10 semester hours of credit for physical education. Ten minutes of each class session is devoted to personal conditioning exercise and the remaining time is spent in formal instruction. Fourth-classmen receive instruction in the foundations of physical activity, survival swimming, gymnastics, and wrestling.

Tennis, handball, volleyball, and advanced swimming are the subjects taken by third-class cadets. Second-class cadets take golf, badminton, personal defense, and lifesaving. The program of instruction for first-class cadets includes such options as scuba diving, advanced sports skills, and instructor assistantships.

The Academy stresses swimming proficiency. All cadets must be able to swim 100 yards and pass the American Red Cross intermediate survival swimming test. Special remedial classes are available for poor swimmers. Advanced swimming instruction includes skindiving and elementary forms of rescue. Coast Guard lifesaving techniques are emphasized in the second-class course.

Physical fitness testing

The Academy's physical fitness test is adapted from a Coast Guard-prescribed test. It includes pullups, situps, a standing broad jump, a 300-yard shuttle run, and a 2-mile run. Minimum levels of performance on the five events have been established by the physical education faculty. Cadets are tested at the beginning and end of their fourth-class summer and once each semester thereafter. Performance on the physical fitness test constitutes one-third of each cadet's physical education grade.

Cadets failing to meet the minimum standards are classified as "remedial." They are then assigned a physical education advisor who devises a physical conditioning program for each individual. The cadets are required to attend regular conditioning sessions until they meet minimum standards. Although no cadet has ever been dismissed for failure to meet physical education minimums, cadets scoring below a specified score must appear before a special board to verify their fitness to remain at the Academy.

Competitive athletics

All cadets must participate in either intramurals or intercollegiate athletics during two of the three seasons each academic year. Cadets implement the intramural program serving as administrators, coaches, and officials. Competition is between the 6 cadet battalions in 18 sports.

Physical education faculty

The head of the physical education department, a civilian when hired, is a member of the permanent commissioned teaching staff. The other faculty members are all civilians and, except for one, have master's degrees. The Academy's informal policy is to require advanced degrees and at least 3 years of physical education teaching experience for all new faculty. Academy officials explained that civilian faculty is used because insufficient Coast Guard officers have the requisite education or experience, and training them as physical education instructors would not be cost-effective.

EVALUATIONS OF PROGRAMS AND GRADUATES

Until 1971 the Coast Guard relied on informal procedures, such as the rotation of the military faculty and annual Coast Guard District Commanders Conferences attended by the Superintendent, to insure that Academy training was compatible with service requirements. The Coast Guard established a study group in 1971 to determine the service's qualitative and quantitative officer requirements for 1972-82 and the requirements Academy graduates would be expected to fill. The group concluded that the Academy should prepare most of its graduates for technically oriented training and careers.

The Coast Guard also arranged in 1972 for a consulting firm to analyze officer performance requirements to determine what education and training is required for Academy cadets. This study relied in part on a questionnaire administered to over 500 graduates to determine their level of proficiency and the level they thought necessary for a variety of operational tasks. The study recommended deleting some courses and adding others to better aline the Academy program with operational requirements.

The Coast Guard has recently established a Coast Guard Academy Professional and Military Training Advisory Committee consisting of five senior officers serving 2-year terms. The initial committee members were an air station commander; commanding officers from a high endurance cutter, a medium endurance cutter, and a seagoing buoy tender; and an executive officer from a high endurance cutter. Most graduates

are initially assigned to these types of vessels and some are later assigned to air stations. The committee's annual meetings are announced throughout the Coast Guard and comments for the committee's review are solicited. The committee's charter permits it to review the Academy's professional and military training courses but does not encompass the academic or physical development curriculums.

During the committee's first meeting in March 1975, it responded to specific questions of the Superintendent. Although it concluded that the Academy was producing basically well-educated young men capable of becoming effective officers, it noted an erosion of the professional and military training of cadets. Among the graduates' deficiencies identified by the committee were

--insufficient knowledge in some professional subjects;

--a noticeable tendency to disregard policies they dislike;

--poor oral and writing skills; and

--leadership ability that was essentially satisfactory, but geared to peers rather than to subordinates.

The committee recommended, among other items, that the Academy

--implement a professional competency program including regular monitoring,

--develop a training simulation capability to teach professional skills, and

--insure fuller and more positive cadet participation in the Commandant's Saturday training programs.

The Academy has no recurring method to determine, as was done in the consulting firm's 1972 questionnaire, how well graduates felt they were prepared for their officer duties. It also has no comprehensive examination to measure the cadets' professional competence before commissioning.

Accreditation

The Academy has been accredited by the New England Association of Schools and Colleges since the association was established in 1952. The association reaccredited the Academy for 5 years in 1974.

Previously, the Academy had been accredited for 10 years, but because it had not corrected some of the deficiencies noted in the 1964 reaccreditation visit, the period was reduced. The Academy must take action on seven items and report to the association on them in June 1977. Among these inadequacies are insufficient books and staffing in the library, doctoral degrees among the faculty, and professional conseling for cadets.

The Engineers' Council for Professional Development accredited the general engineering curriculum of the Academy in 1939. The Academy retained the accreditation, which applied to all cadets under the unitary curriculum, until 1957. In 1973 the civil, electrical, nuclear, marine, and ocean engineering programs were considered for accreditation. Electrical, marine, and ocean engineering were accredited, but civil and nuclear engineering were not. The nuclear engineering program was dropped and the Academy has modified the civil engineering program by dropping core courses and adding engineering courses to try to obtain accreditation.

Congressional Board of Visitors

The congressional Board of Visitors consists of four Senators and six Representatives. In addition to its concern about inadequate library resources, the Board has taken a particular interest in such matters as raising the quality of cadet rations and establishing a viable humanities program. The Board meets annually at the Academy, normally in late spring.

CONCLUSIONS

In general, the Academy's programs appear to be producing qualified officers, but not enough with technical backgrounds. Since the Coast Guard has been unable to obtain enough of such officers from its officer candidate school, it is incumbent on the Academy to produce them. The changes in the academic curriculum from the unitary technical program in 1964 to the nine majors in 1974 has reduced the number of graduates with technical backgrounds from 100 to less than 70 percent of each class. The curriculum changes during this period have been based for the most part on reasons other than changing Coast Guard needs.

The Academy library appears understaffed. This has been a matter of concern for both the accrediting body and the Board of Visitors. Having a fourth-class cadet run the library during study hours is symptomatic of the staffing inadequacy.

The recently established Professional and Military Training Advisory Committee should provide meaningful input to the Academy on a supervisor's view of graduate performance. The committee may wish to obtain and consider the graduates' perception of their preparation for commissioned service.

The Academy has no means to determine that cadets have the professional skills and knowledge which the 4-year program is intended to provide. The professional competency objectives being developed by the Academy may adequately identify these skills, but no comprehensive examination is planned to insure that the cadets have them.

RECOMMENDATIONS

We recommend that the Secretary of Transportation direct the Coast Guard to:

--Meet its need for officers with technical backgrounds by either

1. taking additional actions so that at least 80 percent of each class voluntarily selects technical majors,

2. requiring at least 80 percent of each class to select technical majors, or

3. expanding the core curriculum to provide sufficient technical backgrounds for all cadets.

--Provide enough librarians to staff the library during all hours of operation.

--Establish a comprehensive examination for first-classmen to verify their level of professional competence.

AGENCY COMMENTS

We discussed our findings and conclusions with Coast Guard officials, who generally agreed with them. They are considering what actions to take to implement our recommendations.

CHAPTER 7

MERCHANT MARINE ACADEMY

TYPE OF GRADUATE

The Merchant Marine Academy receives only limited statutory guidance. The statutes require the Academy to prepare individuals for service as Merchant Marine officers. They also authorize the granting of bachelor of science degrees, permit student appointments as Naval Reserve midshipmen and commissioning as naval ensigns upon graduation, and require training aboard vessels and at shore installations.

Originally, the Academy's function had been interpreted narrowly, namely, to provide officers for service aboard U.S. merchant vessels. The Academy currently perceives its mission to be much broader, encompassing preparation for a wide variety of maritime-related careers both ashore and at sea. The Academy recognizes that it serves three major constituencies: the Nation, the maritime industry, and its students. To carry out its statutory mission and to serve the broader interests of these three constituencies, the Academy developed the operational objectives to guide its educational policy. The Academy attempts to impart to its students:

--The academic and shipboard training which will prepare students to be licensed by the U.S. Coast Guard as third mates and/or third assistant engineers eligible for immediate employment as watchstanding officers on U.S.-flag merchant vessels.

--A sound education in the theory underlying the skills required of a ship's officer, so that they may qualify for positions of greater responsibility aboard ship and be able to cope with the rapidly changing technology of the maritime industry.

--The broadest possible program of general education consistent with the professional character of the Academy's mission.

--The opportunity to pursue other academic specialties related to the maritime field which, though not required for licensing, will enhance their value to industry and broaden the scope of their career possibilities.

--The tools of learning and the habit of study so that, through self-education and further academic training,

they may continue their personal and professional development.

--The qualities of self-discipline, responsibility, and leadership for effective citizenship and successful careers as officers.

Interpreting these objectives, the Academy has primarily developed its own programs. It is, however, subject to the requirements of the Middle States Association of Colleges and Secondary Schools, which accredits its degree granting program; the U.S. Coast Guard, which licenses Merchant Marine personnel; and the U.S. Navy, which runs a naval science program to prepare students for commissioned naval service.

To qualify for graduation, all students must (1) complete the accredited academic program, (2) pass a written Coast Guard examination qualifying for either a third assistant engineer or a third mate license, and (3) accept, if offered, a commission as an ensign in the Inactive Naval Reserve.

ACADEMIC PROGRAM

In addition to meeting the requirements for a bachelor of science degree, the primary objective of the academic program is to graduate qualified and licensed merchant officers. The two major courses of study are nautical science and marine engineering. Each year a select group of about 15 midshipmen are graduated as dual majors qualified in both areas.

The departments of nautical science and engineering teach most of the professional aspects of these majors and are the dominant academic departments. The other academic departments, although increasing in importance, are considered supportive.

The further objectives of the academic program and the primary contributing departments are:

--The department of mathematics and science is to provide a sound theoretical understanding of the skills of a ship's officer beyond what is needed for initial licensing.

--The department of humanities, with the support of other departments, is to provide a broad general education.

--Every department (except humanities) is to offer at least three minors programs which are to provide an opportunity to specialize in a maritime field.

The academic program consists of general academic courses common to most students, a professional curriculum based on the student's major, two periods of training at sea, and an elective program. Students also take prescribed courses in physical education and naval science. The academic year is divided into 4 academic quarters which span 11 months so classroom work may be completed in 3 years, with the other year devoted to training at sea and at shore installations.

Majors programs

All students must choose a major area of study by the end of their first academic year. There is no requirement that a certain percentage choose a particular major. Of the current students, 51 percent have chosen nautical science, 40 percent marine engineering, and 9 percent the dual program.

Once a student is committed to a major, he must complete a prescribed series of professional and general academic subjects. Students in the dual program must take most of the professional courses assigned to both of the other programs.

The academic programs, in quarter credit hours, are:

	Major		
	Nautical science	Marine engineering	Dual license
General academic	78	59.5	56.5
Professional	91.5	118	156.25
Sea year	15	15	15
Electives	21	18	6
Physical education	6	6	6
Naval science	12	12	12
Total	223.5	228.5	251.75

Required courses in mathematics, physics, and chemistry provide the foundation for all the technical courses which follow and are scheduled during the student's first 1½ years of residence. The required general academic courses are not identical for all majors. Midshipmen take two quarters of general chemistry but unequal amounts of mathematics and physics. In each case, however, there are minimum requirements to provide preparation for subsequent technical courses. Courses in the humanities and social science are intended to serve the general educational needs of technically oriented students. The humanities and social science requirements are not the same for the three majors. Nautical science majors are required to take 61 quarter credits in the humanities and social sciences, but engineering and dual majors are required to take only 33 and 38 quarter credits, respectively.

The primary objective of the professional courses is to provide the knowledge and ability needed to obtain a third mate's or a third assistant engineer's license and successfully assume the duties of a licensed officer immediately after graduation. The program is also designed to provide a broad theoretical and technical background to enhance a graduate's potential in the maritime industry.

Additional courses, such as law and management, are included in the nautical science major to introduce the student to the systematic study of human behavior. The October 1974 self-study report submitted to the accrediting organization stated that professional program hours in the nautical science program had been reduced to the point that the faculty questioned the sufficiency of the program to meet its primary objective. Professional courses in marine engineering include the structural aspects of ships and the components of a marine powerplant.

The dual major began as an experiment in 1965 to meet an anticipated need for officers qualified in both the deck and engine fields to man modern, technically sophisticated ships. Due primarily to manning problems and union agreements, it is not presently possible to sail in a dual capacity on U.S.-flag ships. According to Academy officials, the maritime industry and the U.S. Government both support the concept, and officers with dual training are in demand. The dual major has presented curriculum problems because of the large course load required. Among these problems are the limited time available for broadening electives and dilution of the training at sea, which must be divided between the two disciplines. The Academy is studying these problems.

Sea year

Federal maritime education is based on the premise that being trained aboard active merchant vessels is superior to being trained aboard schoolships. Midshipmen spend about 1 year at sea on various types of commercial vessels. The purposes of this sea year are to:

1. Insure the exposure of students to the skills, knowledge, and attitudes required of a ship's officer under realistic conditions.

2. Provide the students and the Academy with access to the latest developments in equipment and technology available in the industry.

3. Provide on-the-job growth and development as well as constructive work experience.

4. Provide a basis on which students may determine their suitability for a maritime career.

5. Enable the Academy to determine the motivation of the student for the seagoing profession.

6. Provide special opportunities for cultural growth and tolerance and understanding of all peoples around the world.

7. Provide students with professional contacts before graduation.

The sea year is divided into two segments of 5 months each separated by 6 months of inresidence instruction. The student's first sea assignment comes at the end of his first year in residence. During the first 5-month period, he is assigned to at least two different types of vessels on different trade routes. During the second sea segment, the student may be assigned to classes of vessels on which he had no prior experience or may elect to specialize in a particular type of service.

During each period at sea, a midshipman is required to complete and submit a correspondence-type exercise called a sea project, designed to guide him in observing and participating in a ship's procedures and operations. About 80 percent of the sea project is in the student's major field. The sea project is assigned a total of 15 quarter credits.

Each midshipman is also required to study the managerial functions of ships' officers and company personnel,

policies and procedures, union contracts, and company-union relations. This study is designed to prepare a midshipman for advanced courses, for license examinations, and for assimilation into the maritime industry.

Complementing the sea experience is a 2-week internship with a company ashore. The type of shoreside assignment is primarily based upon the midshipman's interest, but must be maritime oriented. Each midshipman must submit a comprehensive report describing and analyzing his internship training program.

The Academy recognizes that certain aspects of the program need improvement. The greatest problem concerns the formulation, revision, and grading of the sea projects, which are part-time duties of the faculty. We were informed that time limitations imposed by teaching loads preclude updating projects to keep pace with the technological changes affecting the maritime industry. Sea projects are often evaluated in an erratic manner, and some may remain ungraded for as long as 6 months after completion. A joint faculty-student committee is seeking a solution to this problem.

Electives and minors

Every midshipman, in addition to completing the required curriculum in his major, is required to complete a specific number of elective courses. The nautical science majors must complete 21 quarter credits of electives; marine engineering majors, 18; and dual majors, 6. To meet his elective requirement, a midshipman may choose courses at random from any subject area, take a series of related elective courses in a specific field, or complete a prescribed sequence of elective courses leading to a minor.

The minors offered by the various departments range from marine machinery design and naval architecture to computer science and law. Most of the minor programs seem to be directly related to current maritime careers. The Academy offers a nuclear engineering minor, however, which does not seem particularly relevant to current or projected maritime industry needs. Academy officials stated that, although there are no operational nuclear-powered vessels in the U.S.-flag fleet and none are planned, the fleet may someday have such ships. In view of this, we suggest that the Academy reconsider the current relevance of such training and consider suspending it until it is actually needed.

Naval science

Academy students are also midshipmen in the U.S. Naval Reserve and upon graduation receive Reserve commissions. The naval science curriculum at the Academy is a contracted Naval Reserve Officer Training Corps program which accepts credit for professional courses taught by other departments and for military training provided by the midshipman regimental system.

The relationship between the Navy and the Merchant Marine, as described by the Academy, is that officers on merchant vessels should understand naval procedures, so that merchant vessels can operate with the Navy in time of war. To us this requires midshipmen to achieve a level of proficiency lower than that required for active duty in the Navy immediately upon graduation. The current naval science curriculum, however, is intended to impart this higher level of proficiency. If Merchant Marine officers' need for naval science training is less than for those naval officers on active duty, the naval science program may be overtraining Academy students. Since the students carry a large course load, this may be an ideal area for reduction.

Laboratories

Many laboratory facilities are outdated, inadequate, and understaffed, according to evaluations by the accrediting association and the faculty. The poor condition of the laboratories is particularly significant in the department of engineering, which emphasizes laboratory use. The department of nautical science has new and used laboratory equipment on hand but not in use because of insufficient staff to install and maintain it. Some laboratories have modern equipment in operation but are hampered by a lack of space. Academy officials recognize the inadequacies of most laboratories and have included modernization and increased staffing proposals in their curriculum improvement plans.

We discussed these laboratory inadequacies with Maritime Administration officials, who verified our assertions during a subsequent visit to the Academy. According to them, the Academy will identify unserviceable equipment and dispose of it, but new equipment not yet installed will be retained and installed when building renovations are completed in fiscal year 1977.

Academic faculty

Academy officials stated that, since the midshipmen must be prepared both professionally and academically, their

faculty has experience aboard merchant vessels as well as qualifications in traditional academic disciplines. At the time of our review, 67 percent of the academic faculty had maritime licenses, and 82 percent had advanced degrees.

The Maritime Administration, which oversees Academy programs, promulgated the current faculty appointment and promotion qualification standards in April 1969. Different hiring and promotion criteria are prescribed for the general academic departments, the professional departments, and the physical education department. For the general academic departments, advanced degrees, teaching experience, and scholarly achievements are specified for each academic rank. Certain "professional equivalencies" are acceptable in lieu of advanced academic degrees in the professional departments (nautical science and marine engineering). These include Coast Guard licenses, registration as a professional engineer, appropriate naval service, and command experience aboard merchant vessels.

Since they became effective, the standards have been waived once to appoint an individual and twice for promotion actions. Although 25 percent of the academic faculty do not meet the criteria for the positions they now occupy, except for the three waivers cited above, all of them were either promoted or appointed before the standards were implemented. Faculty members below the standards either lack the required academic credentials or the professional experience for their rank. Academy officials do not consider this to be a problem and believe that each member is qualified to teach his subject.

The faculty members teach 44 weeks per year, compared with the normal 32-week schedule for a typical two semester college. Many faculty members believe that the extended academic year inhibits their ability to engage in professional activities.

The Academic Dean does not specifically require professional development by the faculty. However, the qualification standards specify that one factor which must be considered before promoting a faculty member is his involvement in professional development. In addition, nontenured faculty face contract termination if they are not involved in some sort of professional development.

Maritime Administration qualification standards require a faculty member appointed without prior teaching experience or without adequate education courses to complete appropriate courses in education at his own expense, or a suitable program of on-the-job training or counseling. In-house training is to be conducted by the Dean, department head, or a senior

faculty member and is to cover such topics as methods and techniques of education, lesson plans, conduct of classes, student counseling, and classroom management.

The Academy does not have a formal program for training inexperienced teachers, nor does it require its department heads to maintain such a program. Since only one department voluntarily maintains a formal teaching program and approximately one-half of the new faculty members have had no prior teaching experience or preparation, the Academy is not complying with the Maritime Administration standards.

REGIMENTAL PROGRAM

The Commandant of Midshipmen maintains a regimental system at the Academy to provide leadership training and experience and to develop self-discipline for all students. Six company officers and the Assistant Commandant serve as counselors and disciplinarians for the Regiment.

The Regiment of Midshipmen is divided into three battalions with two companies in each. Each company has about 125 members and is further divided into platoons and squads. The midshipman chain of command has about 160 midshipman-officer positions ranging from Regimental Commander to squad leader. These positions are rotated among approximately 200 first-classmen triannually so virtually all receive some command experience.

A major component of the regimental program is the class system. As each midshipman progresses through the Academy program, he concurrently progresses through the class system from unranked fourth-classman to midshipman officer. The Academy considers the system a training device to measure and develop leadership qualities. Midshipman officers gain leadership experience by

--administering Academy policies and procedures,

--enforcing regulations,

--supervising routine activities,

--administering fourth-class orientation training,

--counseling subordinates, and

--commanding the Regiment.

Within the regimental organization are several midshipman boards to improve communication, formulate policy, and

investigate deficiencies. The Regimental Policy Board and the Honor Committee are the two major panels.

The Policy Board may recommend changes to the Commandant dealing with morale and midshipman regulations. Among recent changes initiated by the Policy Board were realining the midshipman officer structure and making attendance at breakfast optional.

The Honor Committee instructs the Regiment to insure high standards of honor, hears cases of alleged violators, and recommends separation to the Superintendent when appropriate. The honor concept at the Academy is general in form and grants students broad discretion as to reporting suspected violators. In the past 5 years, no midshipmen have been separated for violating the honor concept.

Academy officials use a demerit point system to measure a midshipman's ability to adapt to the regimental structure. Academy regulations prescribe certain standards of conduct, and each reported breach will result in the violator receiving a specific number of demerits.

Should a midshipman exceed the demerit limit for his class, the Commandant will summon him to appear before an executive board. The board, composed of Academy administrators, reviews the case and recommends disciplinary action (expulsion, suspension, or some lesser punishment) to the Superintendent for his approval. Two midshipmen left the Academy for conduct deficiency during the past 4 years.

Midshipmen must serve extra duty to eliminate demerits, and certain hours of each day, except Sunday, are set aside for extra duty tours. This duty consists of maintenance work, such as general cleaning and mopping and waxing floors. First-classmen are not assigned extra duty but instead are placed on restriction (confinement to the Academy grounds for an entire weekend). An apparent anomaly in this conduct system is that a midshipman participating in a varsity sport or other extracurricular activity with a practice time that conflicts with the extra duty time is allowed to substitute his practice time as punishment.

A 2-week indoctrination camp for midshipmen candidates begins in July of each year. This program is to provide basic orientation and motivation to each new fourth-classman to send the student into the first academic year qualified to join the Regiment. The period also serves as an intensive practical leadership training for all upperclass midshipmen who volunteer to serve in the indoctrination camp detail. The upperclass midshipmen who participate in the

indoctrination camp detail do so in lieu of taking summer leave.

Academy officials acknowledge that the indoctrination camp will be the most strenuous period in a midshipman's stay at the Academy. Stress training has been deemphasized in recent years and the indoctrination camp has been designed to be more of a learning experience for the fourth-classmen. Candidates are scheduled for 3 to 7 hours of physical activity a day. At least one company officer monitors the program each day and can be reached at night, if necessary.

During indoctrination camp and the first academic year, fourth-classmen are required to learn and recite certain material called "Plebe Knowledge," which includes:

--The Academy's mission, motto, and honor concept.

--The Alma Mater and various Academy songs.

--Daily menus.

--Names of Academy administrators and their positions.

--Names of midshipmen officers and their positions.

--History of the Academy and its development.

--Academy cheers, and any other material as directed by the regimental executive officer.

They are tested almost daily to determine whether they have learned the required information. During indoctrination, fourth-classmen must learn this material while under stress and time pressures. According to Academy officials, this requirement is to teach trainees how to handle themselves in difficult situations, so they may learn to better budget their time.

PHYSICAL DEVELOPMENT

The department of physical education and athletics is responsible for the physical education, intramural, and intercollegiate athletic programs. The physical education curriculum is required for all midshipmen, except for female students, who are excused from boxing and wrestling. Sixty-five percent of the students participate in the optional intramural program and 50 percent are involved in intercollegiate athletics.

Before the arrival of the current department head in 1973, the content of the various physical education classes was left almost entirely to the instructor's discretion. Intercollegiate athletes were excused from classes and graded by their coach. The curriculum has since been revised and is based to a large extent on the other service academies' programs.

Midshipmen must participate in the physical education program during 6 of the 16 quarters of the Academy program. The Academy administration is considering adding 2 additional quarters of physical education to the final year of the curriculum.

Combative training at the Academy consists only of boxing and wrestling. Since female students are not permitted to take these courses, they receive no self-defense training. According to Academy officials, they have inadequate staffing to provide a self-defense course for the female students. Academy officials stated that, due to conditions aboard many merchant vessels and at various ports, a knowledge of self-defense is important for Merchant Marine officers. Since female midshipmen also face these conditions, they should also receive self-defense training.

Ship's medicine and launch courses are included in the physical education curriculum. These courses, although relevant to maritime careers, have little relation to physical development, and members of the department's faculty have suggested transferring such courses to the shipboard training department. Students are excused from 20 class hours of regular physical education courses to take these courses. Midshipmen who serve as instructors for the launch program may miss up to 10 physical education class periods.

Unlike the Department of Defense academies, the Merchant Marine Academy has no physical aptitude examination to screen applicants during the selection process. Physical fitness and swimming tests are administered during the fourth-class year. During the most recent testing cycle, 20 percent of the fourth class failed the physical fitness test and 18 percent failed the swimming test, which requires the student to swim 100 yards using any combination of strokes. Academy officials stated that these failure rates correspond with rates in previous years. Students failing either of the above tests are placed in remedial training until they pass. Once an individual passes the tests, no further periodic testing is required.

In September 1974 the Navy prescribed separate physical fitness tests for male and female midshipmen. These tests

have minimum standards of performance on six events for men and five for women. These minimums become progressively more stringent for each succeeding class. The tests are to be administered twice each academic year. The Academy did not implement the prescribed testing during the 1974-75 academic year. We suggest that the Academy consider implementing the Navy-prescribed fitness test to monitor its students' physical development.

The Academy's intercollegiate program includes 15 varsity teams and 1 major club team. The intramural program is completely voluntary, and students participate on a level commensurate with their ability. The program is coordinated by a faculty member and permits students to compete in any of 20 individual or team sports at the company level.

Based on Maritime Administration standards, four of the department's six faculty members are not qualified for their academic rank and three are not academically qualified to teach physical education. The department head stated that this fact has had an adverse effect on the department because:

--Some coaches have neither the ability nor desire to teach and therefore weaken the program.

--The coaches contributed little in developing the new curriculum.

--Before the 1974-75 academic year, there was no structured syllabus for the department.

--During the playing seasons, coaches' teaching loads are reduced, overburdening the other faculty members in the department.

An internal August 1971 evaluation of the department recommended that the Academy institute a physical aptitude screening program and periodic physical fitness tests. The report also criticized the faculty's lack of professional physical education schooling and other personnel deficiencies.

EVALUATIONS OF PROGRAMS AND GRADUATES

Unlike other academies' graduates, who are initially employed by a military service, most Merchant Marine Academy graduates are privately employed. Because there is no one "user" of all graduates, no central organization exists to provide guidance on its needs or on graduate performance. The Academy therefore has no formal procedure for determining what the needs of the maritime industry are, where its graduates are employed, or how well graduates are meeting industry needs.

The Academy, instead, relies on indirect and informal methods, such as performance on initial Coast Guard licensing examinations, to determine how well graduates are meeting industry needs.

The Coast Guard formulates these tests under its responsibility for licensing all maritime officers. All students must pass the licensing examination before graduating, and 94 percent succeed on their first attempt.

The Academy has received informal inputs from the maritime industry and the Maritime Administration on the demand for oceangoing maritime officers and on new maritime career fields. In 1972 the Academy solicited inputs on new career patterns and partly relied on them in adopting a new academic plan.

Academy officials also rely on information from the Academy alumni association, which attempts to monitor the graduates' performance by tracing their career progression. The association has recently distributed a questionnaire to all graduates to secure more complete data. The information provided by the association addresses the positions graduates hold and does not evaluate their performance or preparation. The most recent survey showed that about half of those responding had sailed on their licenses for less than 3 years.

The Academy's degree-granting program was accredited by the Middle States Association of Colleges and Secondary Schools in November 1949. During a 1962 reaccrediting review, the evaluation team criticized the mix of professional and general academic subjects. The Academy responded by increasing the quantity and level of general academic subjects in the curriculum and was reaccredited in June 1965 and most recently in March 1975.

During 1972-73, the Maritime Administration requested that the Academy develop an academic plan. A planning committee was established to review the various programs, incorporating the views of the Maritime Administration, industry officials, faculty members, and alumni. In November 1974 this committee reported to the Dean, who then developed a plan for implementing acceptable changes during the next 5 years. These proposals were incorporated in a 5-year academic plan released in July 1975, after we finished our review at the Academy.

The Academy is also subject to review by a Board of Visitors consisting of 10 Members of Congress. At the 1974

annual meeting of the Board, no Member of Congress attended, but two sent their designated representatives. One Member of Congress attended the 1973 meeting of the Board.

CONCLUSIONS

The Academy programs appear to be designed to produce qualified merchant officers to serve in the maritime industry We believe, however, that several aspects of these programs could be improved.

The sea year program, which is a valuable adjunct to classroom instruction, involves 10 months and 15 quarter credit hours during which the midshipmen have only minimal contact with Academy faculty. The program has suffered because the sea year projects have not received the full attention of faculty members. Evaluation of these projects is an additional duty of faculty members and is dilatory and erratic.

A large percentage of both the academic and physical education faculty do not meet current standards but were hired or promoted before the standards became applicable. Maritime Administration officials advised that under Civil Service Commission regulations they could not require incumbents to meet the new standards. As an alternative, they have encouraged those below standards to take sabbatical leave and other opportunities for training and development. We suggest that these efforts be continued until all faculty meet the prescribed standards. Also, we believe that the Academy should establish a training program applicable to all inexperienced faculty members.

Female midshipmen currently receive no self-defense training. Academy personnel recognize the need for such training but had no plans to provide an appropriate course for females due to lack of staff. We believe the Academy should provide a self-defense training program which would meet the needs of all midshipmen.

RECOMMENDATIONS

We recommend that the Secretary of Commerce direct the Academy to:

--Give greater attention to the formulation and evaluation of sea year projects.

--Establish a training program for all inexperienced faculty members.

--Provide a self-defense training program applicable to all midshipmen.

AGENCY COMMENTS

We discussed our findings with Maritime Administration officials, who concurred in our conclusions and recommendations. They stated that the Academy's recently approved 5-year academic plan addresses all of these areas. The Academy has taken action to insure the timely grading of sea year projects and all were evaluated this year before the end of the academic quarter following submission. The 5-year plan provides for revising and updating all sea year projects beginning with the class of 1980. The Academy is also enforcing the requirement for providing instructor training to inexperienced faculty and plans to establish a self-defense training program applicable to all midshipmen.

APPENDIX I

CURRICULUM COMPARISON BASED ON SEMESTER HOURS

	Academy				
	Air Force	Naval	Military	Coast Guard	Merchant Marine (note a)
Core curriculum:					
Basic sciences:					
Mathematics	16-1/2	11	19	11	10-2/3
Chemistry	5-1/2	8	7	9	5-1/3
Physics	5-1/2	8	10-1/2	12	5-1/3
Life sciences	2-3/4	-	-	-	-
Planetary sciences	-	-	2-1/2	-	2-1/3
Oceanography	-	-	-	3-1/2	-
Total	30-1/4	27	39	35-1/2	26-2/3
Applied sciences and engineering:					
Computer science	2-3/4	2	(b)	3	2-1/3
Engineering	2-3/4	-	11	2	3-1/3
Mechanical engineering	-	4	7	-	-
Electrical engineering	5-1/2	8	7	4	6
Aero/astro/naval engineering	8-1/4	14	-	3	4
Total	19-1/4	28	25	12	15-2/3
Humanities and social science:					
English	8-1/4	7	7-1/2	6	6
History	5-1/2	6	5	3	6
Philosophy	1	-	2-1/2	-	-
Foreign language	5-1/2	-	11	-	12
Military art	-	-	7	-	-
Geography	2-3/4	-	2-1/2	-	-
Law	4-1/2	3	5	7	4-2/3
Psychology	5-1/2	3	5	3	-
Economics	5-1/2	-	2-1/2	3	4
Political science	5-1/2	-	9-1/2	3	2
Management	-	-	-	3	4
Humanities/social science options	5-1/2	12	-	3	-
Total	49-1/2	31	57-1/2	31	38-2/3
Professional core	-	19	-	15	32
Total core curriculum	99	105	121-1/2	93-1/2	113
Electives	46-1/2	39	17-1/2	39	14
Physical education	14-1/2	(c)	7	10	4
Sea year	-	-	-	-	10
Military training	27	(c)	7	(c)	8
Minimum required to graduate	187	144	153	142-1/2	149

a/Academy assigns quarter credits which we converted to semester hours by multiplying by 2/3. Courses listed are for nautical science majors; marine engineering and dual curriculum majors complete additional courses.

b/Cadets receive instruction in this area as part of other courses.

c/Students receive substantial training but no credit hours are awarded.

APPENDIX II

PRINCIPAL OFFICIALS RESPONSIBLE FOR ADMINISTERING ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office			
	From		To	
DEPARTMENT OF DEFENSE				
SECRETARY OF DEFENSE:				
James R. Schlesinger	July	1973	Present	
William P. Clements (acting)	May	1973	July	1973
Elliot L. Richardson	Jan.	1973	Apr.	1973
DEPUTY SECRETARY OF DEFENSE:				
William P. Clements	Jan.	1973	Present	
ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS):				
William K. Brehm	Sept	1973	Present	
Carl W. Clewlow (acting)	June	1973	Aug.	1973
Roger T. Kelley	Mar.	1969	May	1973
DEPARTMENT OF THE ARMY				
SECRETARY OF THE ARMY:				
Morton R. Hoffman	Aug.	1975	Present	
Norman R. Augustine (acting)	July	1975	Aug.	1975
Howard H. Callaway	May	1973	July	1975
ASSISTANT SECRETARY OF THE ARMY (MANPOWER AND RESERVE AFFAIRS):				
Donald G. Brotzman	Mar.	1975	Present	
M. David Lowe	Feb.	1974	Jan.	1975
Carl S. Wallace	Mar.	1973	Jan.	1974
CHIEF OF STAFF:				
Gen. Fred C. Weyand	Sept.	1974	Present	
Gen. Creighton W. Abrams	Oct.	1972	Sept.	1974
SUPERINTENDENT OF THE MILITARY ACADEMY:				
Lt. Gen. Sidney B. Berry	July	1974	Present	
Lt. Gen. William A. Knowlton	Mar.	1970	July	1974

APPENDIX II

	Tenure of office			
	From		To	
DEPARTMENT OF THE NAVY				
SECRETARY OF THE NAVY:				
J. William Middendorf II	Apr.	1974	Present	
John W. Warner	May	1972	Apr.	1974
John H. Chafee	Jan.	1969	May	1972
ASSISTANT SECRETARY OF THE NAVY (MANPOWER AND RESERVE AFFAIRS):				
Joseph T. McCullen, Jr.	Sept.	1973	Present	
James E. Johnson	June	1971	Sept.	1973
CHIEF OF NAVAL OPERATIONS:				
Adm. James L. Holloway III	July	1974	Present	
Adm. Elmo R. Zumwalt, Jr.	July	1970	July	1974
SUPERINTENDENT OF THE NAVAL ACADEMY:				
Rear Adm. Kinnaird R. McKee	Aug.	1975	Present	
Vice Adm. William P. Mack	June	1972	July	1975
DEPARTMENT OF THE AIR FORCE				
SECRETARY OF THE AIR FORCE:				
John L. McLucas	May	1973	Present	
Robert C. Seamans, Jr.	Feb.	1969	May	1973
ASSISTANT SECRETARY OF THE AIR FORCE (MANPOWER AND RESERVE AFFAIRS):				
David P. Taylor	June	1974	Present	
James P. Goode (acting)	June	1973	June	1974
Richard J. Borda	Oct.	1970	June	1973
CHIEF OF STAFF:				
Gen. David C. Jones	July	1974	Present	
Gen. George S. Brown	Aug.	1973	June	1974
SUPERINTENDENT OF THE AIR FORCE ACADEMY:				
Lt. Gen. James R. Allen	Aug.	1974	Present	
Lt. Gen. Albert P. Clark	Aug.	1970	July	1974
DEPARTMENT OF TRANSPORTATION				
SECRETARY OF TRANSPORTATION:				
William T. Coleman, Jr.	Mar.	1975	Present	
Claude S. Brinegar	Feb.	1973	Mar.	1975

APPENDIX II

	Tenure of office	
	From	To
UNITED STATES COAST GUARD		
COMMANDANT:		
Adm. Owen W. Siler	June 1974	Present
Adm. Chester R. Bender	June 1970	May 1974
SUPERINTENDENT OF THE COAST GUARD ACADEMY:		
Rear Adm. William A. Jenkins	June 1974	Present
Rear Adm. John J. McClelland	July 1973	June 1974
Rear Adm. John F. Thompson	June 1970	July 1973
DEPARTMENT OF COMMERCE		
SECRETARY OF COMMERCE:		
Rogers C. B. Morton	May 1975	Present
Frederick B. Dent	Feb. 1973	Apr. 1975
Peter G. Peterson	Feb. 1972	Jan. 1973
Maurice H. Stans	Jan. 1969	Feb. 1972
ASSISTANT SECRETARY FOR MARITIME AFFAIRS--MARITIME ADMINISTRATOR:		
Robert J. Blackwell	July 1972	Present
Andrew E. Gibson	Feb. 1969	July 1972
SUPERINTENDENT OF THE MERCHANT MARINE ACADEMY:		
Rear Adm. Arthur B. Engel (Ret.)	July 1970	Present

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